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# THE ENCYCLOPEDIA AND DICTIONARY OF EDUCATION

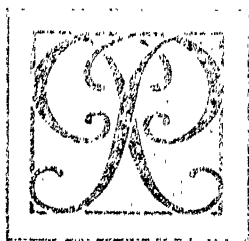
A COMPREHENSIVE, PRACTICAL AND AUTHORITYATIVE GUIDE ON ALL  
MATTERS CONNECTED WITH EDUCATION, INCLUDING EDUCATIONAL  
PRINCIPLES AND PRACTICE, VARIOUS TYPES OF TEACHING INSTITU-  
TIONS, AND EDUCATIONAL SYSTEMS THROUGHOUT THE WORLD

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*de Barcelona.*

*WITH ARTICLES BY ABOUT NINE HUNDRED  
EMINENT AUTHORITIES*



IN FOUR VOLUMES  
VOLUME IV

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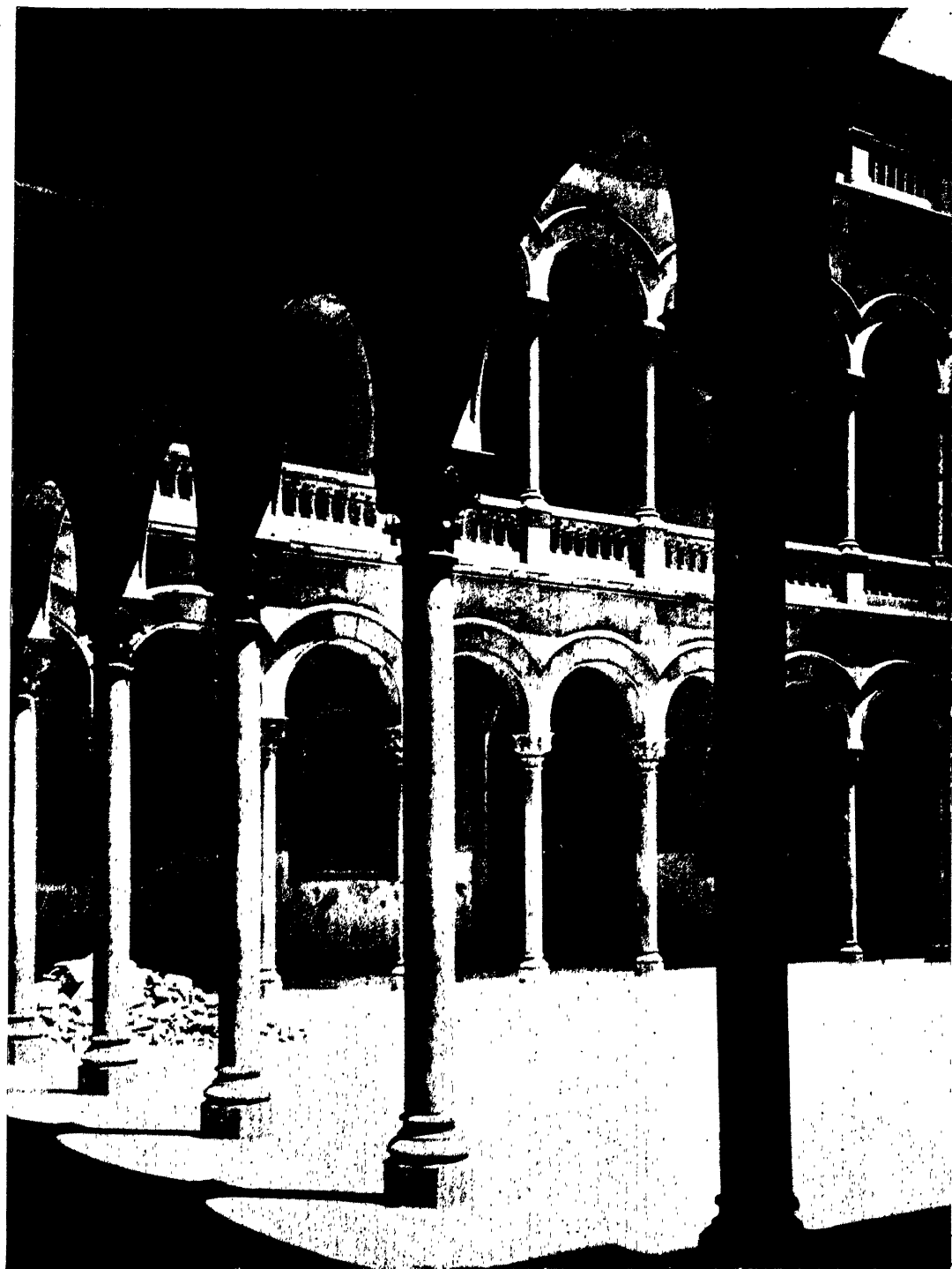
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*The University, Barcelona—The Cloisters*

PLATE LXXXIV





THE ENCYCLOPAEDIA AND  
DICTIONARY OF EDUCATION

## SHO1

## [SHO

**SHORTHAND (PITMAN'S), THE TEACHING OF.**—Pitman's Shorthand, or Phonography as it was called when it was first published, and as it is still most generally known, is a method of rapid writing, invented by Sir Isaac Pitman in 1837, and now in general use throughout the English-speaking world. Pitman's shorthand is both a science and an art or craft. The system has very considerable educational value, since it brings into constant exercise the analytical powers of the practitioner and calls for his close concentration upon the subject matter of which he is taking notes. The practice of the art of shorthand undoubtedly and necessarily increases the vocabulary of the writer, and it is interesting to note (at least as shown in the experience of the present writer) that the shorthand writer is always conscious of the fact when he writes a word in shorthand for the first time. The mastery of Pitman's shorthand can easily be co-ordinated with the study of English, and with great advantage to both subjects.

As to its utilitarian value it is sufficient to say that practically the whole of the business correspondence of the world is in the first instance dictated to shorthand writers, and afterwards transcribed from notes into typescript or into ordinary longhand writing. Pitman's shorthand is also in universal use by professional reporters in the Law Courts, the Houses of Parliament, and elsewhere. There are, besides, thousands of professional men and women who find a knowledge of the system of immense service as a time-saver and as a means of taking very full notes of matters that would otherwise have to be memorized or noted but briefly.

**Theory of the System.** Pitman's shorthand can be successfully taught to students of either sex, and at any stage in their general education. The theory of the system is not difficult to understand and the subject may be made extremely attractive. Indeed, to many students it becomes fascinating, by reason of its original arrangement and the beautiful forms assumed by the words when written in the Pitmanic characters.







The system is phonetic, as is indicated by its name, *Phonography* or *sound-writing*. For the representation of the consonants the system provides separate characters consisting (with the exception of *w*, *y* and the aspirate *h*) of the simplest geometrical forms, viz., the straight line and the shallow curve as shown in the following diagrams—












The order of the arrangement of each group of consonants follows the order of the oral movements

from the lips inwards in the utterance of their respective sounds. The first pair of consonants *p*, *b*, are pronounced between the lips and the next seven pairs at the several natural barriers further back in the mouth. Paired consonants like *p* and *b*, *t* and *d*, *ch* and *j*, *k* and *g* (hard) are represented by paired signs, a light sign for the light sound and a heavier sign for the heavy sound.

Thus—

  | | / / — —  
*p b t d ch j k g* (hard)  
  ( ( ) )    
*f v th th (vocal) s z sh zh*

The nasals *m*, *n*, *ng* are represented by the signs    respectively; the liquids *l* and *r* by   respectively; the coalescents *w* and *y* by  and ; and the aspirate by the upstroke  or the downstroke .

The whole of the consonant signs may be easily learnt in a lesson of thirty minutes or less. The vowels are represented by dots and short dashes, detached from the consonant signs, and there are distinct signs provided for the diphthongs. Abbreviating devices are included in the system for the rapid expression of certain prefixes and word endings and for commonly occurring grouped consonants, such as *stvs* in words like *gamesters*, *registers*, etc. The system is famous for its wonderful phraseographic power, that is, the power of writing several words together without lifting the pen or pencil from the paper. The speed of the writer is very materially increased by means of this great feature of the system.

**Its Effect on the Study of English.** It is true to say that the acquisition of Pitman's shorthand assists the learner to appreciate more fully the niceties of English and to obtain a more precise articulation and pronunciation of the words he uses, so that progress in the system is generally accompanied by an advance in his knowledge of the language and a materially increased vocabulary. It is, of course, desirable that the teacher's efforts should be directed towards giving the learner opportunities of realizing the practical benefits that should result from his knowledge of the system, and to this end the teacher should introduce sentence writing and slow dictation from a very early stage in the course. A simple explanation of the ingenious "halving principle" for the indication of the sounds of *t* or *d* might follow immediately after the mastery of the vowels and diphthongs. This will enable the learner to write

very many more words and more widely varied passages from dictation. Similarly there should be an early explanation, and thereafter a regular employment, of simple phraseography in the matter taken for practice in writing from dictation. Varied throughout the course in this way the lessons may be made bright and instructive at every stage, and the interest of the learner maintained, so that he may master the rules while he is acquiring facility in their instantaneous application.

Definition of the rule, explanation of its application, and copious illustration followed by written exercises on the part of the student, should be the order of procedure for every lesson. The resourceful teacher will find it easy to combine with his explanation of the rules of the system a good deal of instruction in English. Thus, the prefixes and suffixes in everyday use in the language should be explained in the lesson which deals with the shorthand representation of these, and in every lesson throughout the course it will be at once interesting and instructive to bring in some point in connection with the language which seems suitable at the time. Word-building may be practised to an almost unlimited extent and with great advantage to the learner. There should be regular and systematic practice in the reading of shorthand, either from the learner's own exercise book or from a book or periodical printed in shorthand characters. There is in these days a plentiful supply of suitable shorthand literature for this purpose, and it will be found that the reading practice reacts upon and improves the learner's written work.

**Examinations.** Certificates of proficiency in Pitman's shorthand are issued by the publishers of the system and by various educational bodies. Teachers' certificates are obtainable by examination in the theory and practice of the system, and the examination for these certificates includes also a test of the candidates' teaching ability.

J. HYNES.

**SHREWSBURY SCHOOL.**—In 1551 the Free Grammar School of King Edward VI at Shrewsbury was founded, and some time before 1561 it was opened with Thomas Ashton as first head master. Its endowment was increased by Queen Elizabeth in 1571, when Thomas Lawrence succeeded Ashton, who, however, continued to take an active interest in the institution, and drafted statutes and ordinances for its management. The school achieved an instant success, and Lawrence ruled over as many as 400 boys, among them being Philip Sidney and his friend and biographer, Fulke Greville. In 1630 new buildings were erected, which are now occupied by a free library and the county museum. The Civil War and the Commonwealth interrupted the prosperity of the school, and it decayed steadily, till in 1798, when Samuel Butler became head master, there was only one boy on the books. Butler, however, was a great schoolmaster, a fine scholar, and the friend of Dr. James of Rugby. Numbers increased greatly, and the old reputation was restored and enhanced by the introduction of new subjects, and an entirely new organization based on internal autonomy and subordination. Butler was followed in 1836 by Benjamin Hall Kennedy, a great classical scholar, who developed the school in many directions, adding French and mathematics to the regular class work, encouraging athletics, and establishing a choir.

H. W. Moss succeeded him in 1866, and in 1868 the Public Schools Act recognized Shrewsbury as one of the seven great public schools. In 1882 the school was transplanted to new buildings at Kingsland; it had been "pot bound" for more than twenty years, and since the removal its numbers have increased to over 400. The school and its grounds now cover 50 acres; there are a gymnasium, a workshop, and a swimming-bath. Mr. Moss ruled for forty-two years, and was succeeded in 1908 by the Rev. C. A. Alington, and then by the Rev. Canon H. A. P. Sawyer. The work is chiefly classical; but there is a large Modern side, an advanced science class for boys intending to compete for scholarships at the universities, and a special class for the Army examinations. The boarders are distributed in nine masters' houses.

**SIAM, EDUCATIONAL SYSTEM OF.**—The kingdom of Siam, with a mixed and scattered population, four religions, a language poor in literature, and social traditions of a powerfully conservative kind, is, in spite of these disadvantages, slowly evolving a system of education based on English and French models. Buddhist monks, before the days of European influence, gave a little elementary instruction; but Education, in the proper sense of the term, was introduced by missionaries and made a concern of the Government by Prince Damrong, upon whose return from Europe in 1891 a Department of Education was set up, which afterwards became the Ministry of Public Instruction. Much of the teaching under the new scheme was done by Buddhist monks, and a large number of temples were taken over for educational purposes.

Primary schools are now of two classes: in the first, only instruction of the most elementary kind is given; in the second, pupils study Siamese for two years and then English for five more. There are also Government secondary schools with English teachers. Valuable scholarships for study in Europe are awarded annually by the King of Siam to natives selected by competitive examination.

Educational progress has been most marked in Bangkok, the capital, where strong efforts are being made for the establishment of a university. Medical, law, military, and agricultural schools "are all doing good work, if their curricula are not high" (J. G. D. Campbell). There is also a Training College for Teachers, and a Pasteur Institute.

The two chief missionary schools are the Roman Catholic College of the Assumption for boys, and the Presbyterian School for girls.

#### References—

CAMPBELL, J. G. D. *Siam in the Twentieth Century*.  
GRAHAM, A. *Siam Handbook of Practical Commercial and Political Information*.

**SICARD (Roche-Ambroise Cucurron, Abbé, 1742–1822).**—At the completion of his education at Toulouse, became a priest, and was sent to Paris by the Archbishop of Bordeaux to study methods of teaching deaf-mutes (1785). He then took charge of the Archbishop's school at Bordeaux. In 1789 he succeeded the Abbé de l'Épée in the management of the Paris school for deaf-mutes. In 1794 he became a professor in the newly-established Normal School, and in 1800 established a printing-press for the benefit of deaf-mutes, by which his numerous works were printed and published. His *Cours d'instruction d'un sourd-muet* describes his own methods.

**SIDGWICK, HENRY** (1838-1899).—He was, from 1859 to 1869, a tutor and lecturer in classics at Trinity College, Cambridge, and subsequently Lecturer on Moral Philosophy; and, from 1883 onwards, Knightsbridge Professor of the latter subject. His systematic works were: *The Methods of Ethics*, 1874; *The Principles of Political Economy*, 1883; *Outlines of the History of Ethics*, 1886; and *The Elements of Politics*, 1891. Courses of university lectures posthumously published were: *Philosophy, Its Scope and Relations*, 1902; *Lectures on the Ethics of T. H. Green, H. Spencer, and J. Martineau*, 1902; and *Lectures on the Philosophy of Kant, and other Philosophical Lectures and Essays*, 1905. Further occasional papers on various philosophical, social, literary, and educational topics were also collected in *Practical Ethics*, 1898, and *Miscellaneous Essays and Addresses*, 1904. A fuller list, including contributions to the *Proceedings of the Psychological Research Society*, and to philosophical and literary journals, is appended to his *Memoir* (by A. S. and E. M. S.), 1906.

Sidgwick's characteristic as a philosopher was precision in the development of fundamental ideas, as contrasted with the philosophic crudity of contemporary Naturalism and the indefiniteness of absolute Idealism. In *The Methods of Ethics*, his most distinctive work, he re-unites two divergent tendencies in English moral philosophy, of which Butler and Bentham may be cited as representative; an insistence on the moral capacity of human nature, and an effort to make moral intuitions consistent and systematic. He wrote privately regarding this book: "I think the contribution to the formal clearness and coherence of our ethical thought which I have to offer is just worth giving: for a few speculative-minded persons." And with a similar temperamental restraint of expectation, he wrote concerning his *Elements of Politics*: "I seem to myself to have grasped and analysed adequately the only possible method of dealing systematically with political problems; but my deep conviction is that it can yield as yet little fruit of practical utility." The successive editions of these books and of his *History of Ethics* seem to show that Sidgwick's standards of precision and system have imposed themselves more urgently, and the educative value of his expositions has been more widely appreciated among students than he had expected; and this in spite of the allurements of very able contemporary works more positive in promise or more speculative in method.

**Educational Theories.** The passage of his special philosophical tendencies into wider educational enthusiasms seems to have been mediated by the idea of Culture. He accepted this idea as springing from instincts or intuitions of our moral nature such as his ethical philosophy aimed to make precise. And an idea so reflective, when developed into its practical details under modern conditions, must deviate from the grooves of an educational tradition which originated under conditions now changed. Taking as his occasion Matthew Arnold's encomiums of culture, he eliminated the religious and ethical implications which Arnold, in his philosophic irresponsibility, had treated as essential; and he included a power of logical conception which Arnold had overlooked. Scientific insight is an element in the composition of culture, though not amounting to cultural sentiment. Culture does not amount to moral or religious sentiment, though it enters into the content of moral habit and religious observance.

Culture is a harmonious exercise of cognitive, aesthetic, and practical faculties. He wished "to free this fundamental notion, so far as possible, from obscurity and ambiguity, so that our philanthropic efforts to promote culture may have a clear and precise aim."

Although "the love of knowledge and beauty cannot be secured by any formal system of lessons, yet it can be imparted through intellectual sympathy; there is a beneficent contagion in the possession of it." And Sidgwick devotes the most elaborate of his educational essays to the problem, how a scheme of education can best "hope to maintain, in spite of the increasing specialization inevitably forced on us by the growth of knowledge, our intellectual interests in due breadth and versatility, while at the same time gratifying our sense of beauty." Intervening in the perennial controversy as to our traditional school curriculum in classics, he urged "that the period of controversy in defence of Latin and Greek should now close . . . and intelligent educators should express the value of the arguments provided for them, in carefully guarded and limited statements." He contrasts a "natural" scheme of education, giving a wealth of permanently influential ideas, with an "artificial" one, a mere discipline of faculty. Where a scheme at any stage of its elaboration, for example, in adding versification to translation, or Greek to Latin, must choose between natural efficiency and artificial, the burden of advocacy lies on those who choose the latter. It is only for the clerical and literary professions that the traditional elaborations of a classical education can be "natural"; while their "artificial" efficiency as a discipline in style and in the logical appreciation of language is inchoate unless absorbed into the "natural" efficiency of our own vernacular. And even so, literary studies, although unique and many-sided in their union of values, do not gather the full component elements necessary to culture, unless supplemented by physical science.

The "beneficent contagion" of culture was familiar to Sidgwick's pupils; but his express contribution to the methodology of teaching was slight, and concerned only the specialized sphere of his own experience. It was a "Lecture against Lecturing." The function of university instruction is something more than the insistences of the school and the informativeness of the Press, and "the university professor should no longer, as of old, make it his business to give the exposition of his subject which could be given in books." But beyond substituting "explanation" for "exposition," he found that he could "more easily see the general direction in which improvement is needed than the precise nature of the changes of method to be recommended." (See *Misc. Ess. and Add.*, Nos. 2 and 12-16; *Practical Ethics*, No. 8.)

Sidgwick's *Memoir* records varied practical work in furtherance of university and educational interests; the most impressive, perhaps, being the persistent and successful advocacy and organization of higher education and university privileges for women.

J. BROUGH.

**SIGNS IN DEAF TEACHING.**—(See DEAF-MUTISM AND EDUCATION.)

**SILCOATES SCHOOL.**—The desire in the northern counties for a school for sons of Nonconformists, where sound learning and strong Nonconformist

principles should be inculcated, led, in the year 1809, to the establishment of a proprietary school under the name of "The Yorkshire Protestant Dissenters' Grammar School." Silcoates Hall, in the Parish of Wakefield, was purchased for the purpose. This school was closed before 1820, owing to lack of funds, but was revived as the "Dissenters' Grammar School." The school was gradually enlarged until in 1870 the number of boys was 47, including 14 sons of ministers, and in this year the school was inspected for the first time by an examiner connected with the Syndicate of Cambridge.

In 1904, the school was destroyed by fire. In 1908 the present school was opened. The new buildings include school and dormitory accommodation for 100 boys, a dining hall and an assembly hall, music rooms, laboratory, preparation and dark rooms, etc., with a large covered playground and gymnasium.

A list of the headmasters include the Rev. J. France, M.A. (1809-1823); Rev. M. H. Williamson (1823-1826); Rev. G. Legge, B.A.; The Rev. E. Miller (1831-1839); Dr. Munro (1839-1850); Rev. James Bewglass (1854-1876); Rev. William Field, M.A. (1876-1897); J. A. Yonge, M.A., J.P. (1897-1918), and the present headmaster, Mr. Sidney H. Moore, M.A.

**SIMILARITY, ASSOCIATION BY.** — (See ASSOCIATION, PSYCHOLOGY OF.)

**SIMPLIFIED SPELLING.**—Spelling is an invention and convention by which certain visible symbols, written or printed, are taken to represent audible speech. The best scheme of symbols is found in an alphabet or series of so-called "letters." A good alphabet should comprise one, and only one, symbol for each distinguishable sound in the living speech; no symbol should represent more than one such sound. As the articulate sounds in various languages are not identical, each language, to be perfectly represented by graphic symbols, might require an alphabet of its own. The history of alphabets shows that letters have been handed on from nation to nation, serving their turn somewhat better here and worse there; but, in any case, as language and pronunciation are subject to constant modification, while spelling once conventionally determined is intrinsically unchangeable, periodic revisions are necessary, in order to maintain, or to re-establish, a working harmony between written or printed symbols and living speech.

Urgent need of reform in English spelling arises from utter neglect of such periodic readjustments, and ever-growing divergence between English spoken and English spelt. Moreover, our borrowed Latin alphabet supplies no proper symbols for sundry recognizable sounds in English speech: consequently, one symbol has to do duty for a variety of different sounds. Further, many letters and syllables in English spelling are mute, that is, have no force in the spoken words: hence, ambiguity and confusion in the relations between signs and sounds; hence, too, redundancy and extravagance in writing and printing. English orthography sins against every known canon of reasonable, economic, and convenient spelling. There are no rules for English spelling; the form of each word has to be memorized individually; bewilderment of mind and waste of time are the results; the day is indefinitely postponed when English shall be a universal language for the mental commerce of mankind.

The ideal English alphabet would comprise thirty-eight distinct symbols, there being thirty-eight articulate sounds distinguishable in normal English speech. Such an alphabet would, of course, employ traditional symbols as far as possible; but no symbol would represent more than one sound, no sound would be represented in more than one way. A nearly perfect alphabet of this kind was devised by Isaac Pitman: a little practice enables any intelligent person to read, and even to write, its characters. But experience has shown that radical changes, however useful, encounter dogged opposition from ignorance, prejudice, and habit. The truly phonetic spelling of English, on which a scientific people would insist, remains for the present a counsel of perfection. Meanwhile a beginning of better things has been made, in modest guise, by a simplification of our spelling.

"Simplified spelling" undertakes to render English orthography less irrational and more economic without introducing any new letters, or altering any existing fount of type. It even reduces the alphabet by discarding superfluous letters *c, q, x* (*c = k* or *s*; *q = kw*; *x = ks*); drops all silent letters and syllables; fixes the pronunciation of all individual letters and digraphs. It concedes to foreign words and proper names their traditional spellings. It furnishes a graphic representation of spoken English far more rational than our present orthography: consequently more economical of time, labour, and materials.

Opposition to simplified spelling comes from two different quarters. Advocates of thorough and scientific reform on phonetic lines are not content with such merely partial and provisional amendments: numberless adults, nominally educated, having acquired the trick of English spelling—forgetting its difficulties, overlooking its anomalies—believe that to rationalize English spelling is to destroy the language and disfigure the literature. Their arguments have been refuted in theory and in practice, but their prejudice seems invincible; the inertia of grown-ups promises to rivet our antiquated and absurd orthography on generations to come, unless authority effects a rescue.

Forty years ago the National Union of Teachers demanded a Royal Commission on spelling in the interests of primary education; the School Boards of London, Birmingham, and Liverpool backed the demand: that Commission is yet unborn.

There is no more striking proof of our national indifference to science and its applications than the condition of English spelling to-day; in the new age succeeding the world-wide war this question, too, may obtain attention.

For Bibliography, see publications of Simplified Spelling Society, 44 Great Russell Street, London, W.C.1, and Simplified Spelling Board, 1 Madison Avenue, New York. R. W. MACAN.

**SIMULATION.**—A form of acting practised for the purpose of deception. A child simulates suffering to excite sympathy, to escape punishment, or to obtain favour. The practice is common among criminals and other depraved persons, and is frequent among children during the years when imagination is most active. Many poor children are brought up in an atmosphere of deception, where whining and the plea of poverty are the stock-in-trade of their elders, and it is one of the difficulties of the teacher to differentiate between the real and the imaginary.

**SINGING.**—(See VOCAL MUSIC, THE TEACHING OF.)

**SINGING, THE HYGIENE OF.**—The health-giving nature of singing under proper conditions has long been recognized. Amongst many old testimonies, we have that of William Byrd, who published his *Psalms, Sonets, and Songs of Sadnes and Pietie* in the year of the Great Armada, with the following (among other) "Reasons briefly set downe by th' auctor, to perswade euery one to learne to singe"—

"First, it is a knowledge easely taught, and quickly learned, where there is a good Master, and an apt Scoller.

"2. The exercise of singing is delightfull to Nature, and good to preserue the health of Man.

"3. It doth strengthen all parts of the brest, and doth open the pipes."

The physical benefit of singing comes under two heads: (1) Physical, both in cause and effect; and (2) Psychological, but with pronounced physical result.

Under the first head comes the training of muscles to secure (a) an equable poise of body; (b) expansion of the chest for breathing; (c) absence of constraint about the throat; and (d) freedom of the vocal resonators and articulatory organs. Attention to the subject is aroused through the desire to sing rather than to benefit the general health; yet such benefit has followed so markedly as to compel attention for its own sake.

The good trainer of singers appreciates the importance of the well-balanced body: no perfect singing is possible if the attitude be ungainly. He knows also that the full expansion of the chest, by lateral movement of the lower ribs and by descent of the diaphragm, not only secures an ample supply of air for musical phrasing, but also carries with it a full oxygenation of the blood, and a further benefit to the vocal tone by the full expansion of the important lower resonator in the neck. He knows the delightful freedom which exists when the singer is unconscious of the laryngeal muscles and their control. He knows, finally, that the conditions which make for good music in the resonating cavities of the neck, mouth, and nose are also of importance to health. Many a child has been saved from throat and ear trouble through the choir trainer discovering those common impediments to health, speech, and song—adenoids and diseased tonsils. From the earliest stages, good teachers of singing bear these requirements in mind, and enjoin an important preliminary operation known, politely, nowadays as "Handkerchief Drill," but called by our grandmothers "Blowing the Nose." Some authorities advocate the use of both hands for this, to avoid uneven pressure upon immature nostril walls. It need hardly be added that these operations should be carried out in good air where a maximum of oxygen and a minimum of dust may be counted on.

The second main heading (Psychological) calls for little remark here, because its results are so well recognized. All school teachers can testify to the effect of cheerful music on a dull day; every military trainer can tell of the metamorphosis in the ranks during a tedious route march, when the band begins. Here we get the purely psychological cause with far-reaching physical result. When the school class or the regiment produces its own music, with

Nature's instrument, the combined physical and psychological stimulus is irresistible.

The Great War has produced further evidence of the power of music. "Vocal Therapy," healing by song, has come to its own in many a military hospital. J. E. B.

**SION COLLEGE.**—Formerly situated in quaint buildings adjoining the Church of St. Alphage, London Wall, was founded in 1630 by Thomas White, D.D. (1550–1626), Rector of St. Dunstan's in the West, as an almshouse for twenty persons, and a place where the clergy might assemble "for converse grave and gay." The old site was disposed of in 1884, and new buildings opened on the Victoria Embankment. City Rectors and the incumbents of adjacent churches are now Fellows, and the college is governed by a president, two deans and four assistants. The clergy of Larger London are also eligible for membership on payment of certain fees. A very valuable library of 130,000 volumes is open to the use of Fellows and their assistant curates (the fee for borrowing books is 10s. 6d. per annum), but others, whether clergymen or laymen, are admitted to work in the library if recommended.

**SISTERS OF CHARITY.**—(See ROMAN CATHOLIC CHURCH, THE TEACHING ORDERS OF THE.)

**SIXTEENTH CENTURY, EDUCATION IN ENGLAND IN THE.**—The chief feature of English education in the sixteenth century is the development of the grammar school as a national system of education, its gradual permeation with classical humanism, up to the time of the withdrawal from England to Switzerland of the Protestant exiles, to escape the persecution of Queen Mary's reign. On their return from Switzerland, English education passed under the influence of the returned exiles. Thus Grindal, Archbishop of Canterbury, and Edwin Sandys, Archbishop of York, were returned exiles who founded grammar schools; as were also Richard Cox, Robert Horne, Alexander Nowell, John Jewell, Lawrence Humphrey, John Parkhurst, James Pilkington—all returned exiles filled with the Zwinglian ideas as to education, and the practice of principles of moral and religious life, now known (in their more extreme form) as Puritan. The teaching of religious doctrines became necessary in the national schools after the Protestant Reformation, especially when reinforced by the experiences of the Marian Persecution. The sixteenth century, marks the introduction of Renaissance classicism, together with the Swiss system of religious catechisms and religious training, into the schools; and the struggle between classicism and Puritanism was very bitter, ending in the seventeenth century in the triumph of Puritanism over Renaissance education, the classics holding their position, largely because Latin and Greek (together with Hebrew) were the "holy" languages most closely connected with the original texts of the Scriptures.

**Mediaeval Grammar School System.** But the school system of the sixteenth century was, on the whole, the survival from the Middle Ages. At the beginning of the sixteenth century, England possessed schools associated with the cathedrals, with collegiate churches, monasteries, gilds, hospitals, and chantries. A chantry (there might be several in connection with one church) was an endowment for a priest to sing (chanter) Masses for the founder

and also to perform other duties, the most frequent subsidiary duty being that of teaching. (See CHANTRY SCHOOLS.) Commissioners were appointed under the Chantries' Act of 1546 (in Henry VIII's reign) and in 1548 (in Edward VI's reign) to inquire into the endowments of chantries then existent. These Commissioners were appointed nominally for the "continuance" of schools. Apparently, nearly 200 grammar schools were crushed or injured by the Commissions. Mr. Leach estimated the total number of grammar schools before the Reformation, in England, at 300, viz., an average of one school for every 8,300 of the population. He also noted that Essex, with a population of 11,000, had sixteen grammar schools. The English grammar school system before the Reformation appears to have been reasonably adequate in affording opportunities for clever boys to receive a (to use the modern term) secondary education.

**The Elizabethan System.** Probably at the end of Queen Elizabeth's reign, the provision of school accommodation caught up the "spoliation" of the times of Henry VIII and Edward VI. The new Elizabethan schools were built *ad hoc* apart from churches.

**Cranmer as Educational Reformer.** "If the gentleman's son be apt to learning, let him be admitted [to Canterbury Cathedral Grammar School]; if not apt, let the poor man's child that is apt, enter his room." Cranmer projected a plan of academical colleges in connection with cathedrals, as well as re-foundations of old cathedral and collegiate grammar schools. Twenty-one such schools were named and, relatively to the times, the proposed payments of masters were not illiberal. Latin and Greek, together with grammar and logic, were to be taught, and, when practicable, Hebrew was to be included. In the colleges, Latin, Greek, and Hebrew were to be continued; physic and civil law, and (the first modern suggestion of the kind) "sciences" and French. Cranmer's *Scheme* (c. 1539) may be described as the first project for systematic provision of secondary education in England.

**The "Utopia."** The *Utopia* of Sir Thomas More (1517) advocates manual training. All men and all women learn at least one craft. There is daily study of good literature. All children are to be instructed in their native language and, in their later life, in music, logic, arithmetic, and geometry. Natural philosophy is advocated as a study and Greek.

**Other Suggestions of Educational Organizations.** Of other English writers in the earlier part of the sixteenth century, Reginald (afterwards Cardinal) Pole deserves mention. Unfortunately we only know his views, second-hand, through Thomas Starkey, who wrote (c. 1536) *A Dialogue between Cardinal Pole and Thomas Lupset*, lecturer on Rhetoric in Oxford. Pole is there depicted as advocating that the provision for the *poor* in the universities, colleges, and "common places" (i.e. schools) should be made available for the nobility and gentry, so that they may receive an education suitable to equip them as *leaders* in the Commonwealth; and Pole suggests that Westminster Abbey, St. Albans' Abbey, and "many other" should be turned into educational institutions for the training of the young nobility. Pole, therefore, was the pioneer of the idea of the public school.

In 1546, in a *Supplication for the Poor Commons*, we find the complaint that "we cannot send our children to school," as occupiers of land "*hevetto fore*" were able," owing to the demands for higher

rent from the lords. In 1548, Sir William Forrest advocated that even the children of poor parents should receive elementary education, and, if necessary, school-fees should be paid for those who could not afford them (in the *Pleasant Poesye of Princelike Practice*). He further suggested that the children under 8 years of age should be taught some handicraft, and that on their leaving school a town officer should supervise all youths to see that they should not "idle about" on pain of being put in the stocks.

**The Curriculum.** Turning to the educational curriculum in the earlier part of the sixteenth century, the treatment of the subject came, for the most part, from those who were not school-teachers. Sir Thomas More advocated the education of girls and women.

Sir Thomas Elyot, in the *Boke named the Governour* (1531), mapped out the form of education of a gentleman's son, with a view to service in the Commonwealth. Elyot considers a nobleman should have Latin spoken in his household, so that it may become an atmosphere for his children. From 7 years of age, the child is to learn Greek and to use Latin "as a familiar language." He expects the child of 12 years to have read Aesop's Fables, select Dialogues of Lucian, the comedies of Aristophanes, Homer, Virgil, Silius, Lucan, and Hesiod. His Latin teaching has forecasts of realism in it, the teacher being required to inform the child of all things "that cometh in sight." Elyot believes in maps and charts for teaching history and geography, and is the first English advocate of the teaching of drawing. All the great classical historians are to be read. The first to advocate the reading of modern histories was J. L. Vives in his *de Tradendis Disciplinis*, published in the same year as Elyot's *Governour* (1531). The height of all study is to read Aristotle, Plato, and Cicero; and, in his enthusiasm, Elyot names these writers (in his treatment of moral philosophy) before he mentions the Bible. Besides writing the *Governour*, Elyot compiled the first Latin-English dictionary.

**The Beginnings of the Teaching of Modern Subjects.** The training of nobles and gentlemen was of the first importance, historically, especially in countries where the aristocracy took a leading share in government or in resisting an autocratic monarch. (See NOBLES AND GENTRY, EDUCATION OF.) Whilst this training had been given in the houses of the great barons in mediaeval England (see HOUSEHOLD EDUCATION) and in the royal household, there was a Master of Henxmen, whose duty it was to teach courtly accomplishments. The example of the Italian courtesy and training in Italian courts intensified the English custom of courtly training after the Renaissance; and the demand for "academies" (see NOBLES AND GENTRY, EDUCATION OF) in Queen Elizabeth's reign, and in the times of James I and Charles I, was in a direct line of continuity with Italian usage. It is important to recognize the place of the Inns of Court in the higher education of nobles. On the whole, in the early part of the sixteenth century, the Inns of Court supplied higher education for nobles, and the universities for poorer students (see Froude: *Hist. of Eng. I*, 37); though by the seventeenth century the proportion of wealthier students in the universities had much increased.

**Apprenticeship and Education.** The city companies and guilds throughout the country imitated the households of the nobles in having their retainers.

consisting of apprentices, and, in some cases, establishing schools of the grammar school type. No doubt the system of apprenticeship was widespread (see APPRENTICESHIP SYSTEM) and, whilst learning their trades, apprentices progressed in general knowledge, from the atmosphere of the home. In seventeenth-century households this was one of the most common and most effective methods of the spread of Puritanic ideals. The appropriation of the palace of Bridewell in 1553, in the reign of King Edward VI, combined the functions of hospital, workhouse, and house of correction, as well as of school, and tended to degrade the *status* of apprenticeship by supplying a poorer class of apprentices.

**Trade Schools.** These arose in the more important cities. In 1516, the Mayor of Lincoln introduced a clothier to teach cloth-making. In 1596, the wife of a shoemaker at Leicester was allowed £20 a year for stock in teaching children kersey knitting. Thus there were, even in the sixteenth century, municipal trade schools for both boy and girl pupils (Foster Watson: *Beginnings of Teaching of Modern Subjects*, p. xliv).

**Commercial Subjects.** The development of the navigation and commerce of England, consequent upon the discovery of America, and the opening up of trade with North America and West Indies, and extension of trade in the East, naturally led to important educational results. Sir Thomas Smith, Governor of the East India Company and of the Virginia Company in 1588, secured Thomas Hood, a Fellow of Trinity College, Cambridge, to lecture on mathematics, as a basis for the study of navigation, at his house in Gracechurch Street. Earlier, in 1584, Richard Hakluyt, the great historian of Elizabethan travels, wrote to Walsingham suggesting the foundation of a lectureship in mathematics, and a second lectureship in the art of navigation, in or about Ratcliffe, at a yearly stipend of £50 each. Sir Thomas Gresham (*q.v.*) left money for the foundation of professorships in the seven "arts." There is an instance about 1580 of the teaching of French by a Huguenot, Dr. Adrian Saravia, but this was clearly exceptional. (Foster Watson: *The Beginnings of the Teaching of Modern Subjects*, p. 396.)

**Subjects Outside School Teaching.** The educational curriculum, in the broadest sense, related itself directly to the national needs. Hence we can see the beginnings of training for commercial careers; the attempt to study the languages most nearly affecting the national prosperity—French, Italian, Spanish, Dutch, German; and a considerable advance in the study of mathematics and applied mathematics; and, in the case of the higher classes, the reading by gentlemen and scholars of folios and quartos of modern history and modern geography. Map-drawing assumed an assured place in the printing-press, but not in the educational institutions. "The Tudor mathematicians, though chiefly coming from Cambridge University, pursued their higher mathematical training *after* leaving the university. They were sometimes physicians, sometimes gentlemen of means, and again men of political affairs or ecclesiastics" (Foster Watson: *Beginnings of Teaching of Modern Subjects*, p. 261). In the promotion of mathematical education, no man in the sixteenth century deserves so much attention as Robert Recorde (*q.v.*). During that century it was logic, as a survival of the mediaeval régime, that held the chief place in academic studies in the universities, and grammar in the schools.

By the end of the sixteenth century, the reading of Latin literature and often the speaking of Latin, and sometimes the basis of a knowledge of Greek, were characteristics of the English grammar schools. (See GRAMMAR SCHOOLS.)

**Private Tutor—and His Fall.** At the earlier part of the sixteenth century, the private tutor usually gave the early instruction in the houses of the wealthy. Owing to employment of private tutors by the Catholics in Queen Elizabeth's reign, severe penalties were introduced against the Catholics availing themselves of the old practice of sending their children to schools abroad. The Catholic schools abroad reacted on the grammar schools in England, making them more intensely Protestant in their curriculum, and also tending to secure that the standard of the classical teaching should not be behind that of their rivals. F. W.

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**SIZE OF SCHOOLS AND CLASSES.**—There are great variations in size among elementary schools in England and Wales, largely due to unequal population. Of the 32,000 elementary school departments, 2,400 have an average attendance not exceeding forty; 1,500, not exceeding fifty; and 1,600, not exceeding sixty. Radnor has the highest proportion of small departments: thirty-five out of a total of fifty-three have an average of less than sixty; in Brecknock, Montgomery, E. and N. Ridings, and Hereford, about half of the school departments are of similar size.

Twenty-seven thousand departments, each with an average attendance of over sixty, supply urban areas. The largest is the Jews' School in Stepney, with accommodation for 3,400 children; there are four others each capable of receiving over 2,000 pupils. These large schools are eminently suited for effective organization and instruction, as the classes can be made nearly homogeneous; but the personal influence of the head teacher on individual pupils is but slight.

In small schools, the head teacher comes into close contact with the scholars; but, often being the only fully-trained teacher, he has to take three or four classes of different attainments, trusting the remainder to insufficiently qualified teachers. To meet this difficulty as far as possible, the Board of Education recommend the collecting of children from reasonably large areas into schools of moderate size by carriages and other conveyances.

The Board of Education state in their building



rules that it is not desirable for a single department to contain more than 400 children; permission, however, has been given here and there for departments of 500, so that this regulation is not one with which absolute compliance is required. They recommend that, in urban areas where the local authority has to provide accommodation for 1,000, three departments shall be built, each accommodating about 360. In congested areas, where land is costly, and where it may be necessary to provide accommodation for 1,600 or 1,700 on the same site, they advocate the building of four departments, approximately equal, consisting of two parallel junior departments, each containing children up to about the age of 9, and two separate departments for boys and girls. In smaller towns requiring accommodation for about 750, they suggest a boys' department of 225; girls', 225; and infants', 300: while, for areas containing 400 children, they suggest a senior mixed department of 240 and a junior mixed department of 160.

**Size of Classes.** This is largely regulated by the capacity of the classrooms, and to a less degree by the following regulations defining the minimum staff which is acceptable to the Board of Education:

"In no case will a staff be considered sufficient if, in the aggregate, it is not at least equivalent for the average attendance of the school or department measured by the following scale, viz.—

Teacher	Number of Children in Average Attendance.
The Head Teacher . . . . .	35
Each Assistant Teacher (Certificated or Recognized under Schedule I, B) . . . . .	60
Each Uncertificated Assistant Teacher . . . . .	35
Each Student-Teacher . . . . .	20
Each Supplementary Teacher . . . . .	20

The number of scholars on the register of any class or group of classes, under the instruction of one teacher, must not exceed 60."

Since it is permitted that a class of sixty children may be placed in the care of one teacher, a very large number of such classes are to be found in the primary schools. Now, in secondary schools, no class may have more than thirty-five pupils; and, in London, there is a regulation that there shall at least be an assistant teacher for every twenty children. In the central schools of the Metropolis, the maximum size of a class is forty. There is no doubt that the size of classes in elementary schools should be considerably reduced.

The official code of school regulations sets forth that the teacher in these schools is required to lay the foundation of character; to foster a strong sense of duty; to teach the children to reverence what is noble; to train them to strive their utmost after purity and truth; to develop their intelligence; and to make the best use of the school years available in assisting them according to their different needs to fit themselves practically, as well as intellectually, for the work of life. The trained teacher can make a large class learn; but it is utterly impossible for him to achieve real success in inculcating the high ideals he is instructed to aim at with such unreasonably large numbers of children.

In the secondary schools, where the children come from homes in which they are morally and physically well cared for, no class may have more than thirty-five

—generally less; yet in thousands of cases in the elementary schools, where the children are gathered from homes in which learning is often little esteemed, and where they are surrounded by squalor, dirt, and neglect, the over-taxed teacher is expected to work miracles with a class of sixty.

Is it possible to believe that the teaching power considered essential for children from good homes, where appreciation of the advantages of education is part of their natural environment, is not at least equally necessary for those who come from poor homes, where the true significance of national education is at best but dimly understood? Until these unduly large classes are reduced to reasonable dimensions, it is beyond human power to fulfil the requirements of the Board of Education.

The London County Council, in 1912, recognizing the advisability of a considerable reduction in the size of classes, resolved to take the necessary steps by erecting new schools and enlarging or improving existing schools; to reduce to forty, in the case of senior departments, and to forty-eight in the case of infant departments, within a period of fifteen years, the accommodation of all classrooms in their public elementary schools which were then recognized as accommodating more than those numbers. This beneficial scheme was, however, postponed in consequence of the war; and the proposed reforms, urgently as they were needed, were, unhappily, relegated to the uncertainties of the future.

C. W. II.

**SLANG.**—The word *slang* is of no great antiquity, but of obscure origin. In modern English it is used of two types of speech: (1) a highly colloquial language, differing in vocabulary from standard English, but understood by all, and used, consciously or unconsciously, by the great majority; (2) the special vocabulary affected by some particular class or calling, such as university slang, stage slang, coster slang, etc., usually understood and employed only by the initiated. But the oldest application of the word, first recorded by the *Oxford Dictionary* for 1756, is to the rogues' language or thieves' jargon, which, during the sixteenth and seventeenth centuries, was called "cant" or "podlars' French."

In other languages also the earliest records of this speech are connected with the criminal and disorderly classes. German *Rotwelsch* (i.e. beggars' Welsh) dates from the fourteenth century, while of French *argot* we have traces in the fifteenth century, including the curious *jargon* poems of Villon. The oldest English documents, apart from some unintelligible words and phrases in mediæval drama, belong to the sixteenth century.

**The Origin of Slang.** But there can be no doubt that slang, evanescent by nature and seldom reduced to writing, is of very much older date. We know, for instance, that French contains an element due to Latin slang. For *caput* the Roman soldier used *testa* (pot or tile), which has given French *tête*. Similarly, the Germans replaced *haupt*, head, by *hopf* (drinking-vessel, *cup*). Here we have exemplified the chief characteristic of slang, viz., the substitution of a crude metaphorical term for the word in literary use. But the slang word is not often of such obvious meaning, and the greater part of the vocabulary is of the most obscure origin. Even words of quite recent introduction, such as *knut* and *swank*, defy the etymologist, and the Great War has enriched the language with hundreds

of words, some of which, such as *strafe* and *tank*, will be easy to trace; while others will supply puzzles for the philologists of the future.

This process of substitution applies especially to certain regions of the vocabulary. Hotten notes 133 slang words for various coins, and this number has grown considerably since his time. Slang names for money, for strong drink, and for its effects are numerous in all languages; and the same is true of the names given to parts of the body and articles of attire. The share which the criminal classes have had in the creation of modern slang is seen in the many names applied to the policeman; one represents *ecilop* (i.e. *police spelt backwards*).

Another characteristic of slang is the tendency to mutilate words either by abbreviation or by giving them a grotesque ending. The first process is illustrated by the many monosyllables, such as *mob* (mobile vulgus), *tick* (ticket), *cit* (citizen), which appear in the seventeenth century; and are paralleled by modern creations, such as *biz*, *pub*, *vet*, *Cri*, *Pav*, etc. The love of grotesque arbitrary endings, as in our *splendiferous* and the American *absquatulate*, is especially characteristic of French slang. To its predilection for the combination *-che*, as in *Angliche* for *Anglais*, we owe *Boche*, a decapitated *Alboche*, which, in its turn, is an arbitrary perversion of *Allemand*.

**Slang in Relation to Language.** We may regard slang, in its relation to language, as a tributary of a mighty river. This tributary is itself fed by springs innumerable, which are constantly reinforced. So far as our knowledge goes, the core of modern slang is the ancient thieves' language. By imperceptible gradations, this merges into that of the disorderly, though non-criminal, classes—the pedlar, cheap-jack, wandering showman, strolling player, etc. These elements receive contributions from the more disreputable circles of the eighteenth and nineteenth centuries—the turf, prize-ring, cockpit, debtors' prison, etc.; from the slang of the Army and Navy, the universities and schools; and from the technical vocabularies of every profession and trade. Here slang begins to become indistinguishable from metaphor. When both Mr. Kipling and Mr. Buchan say of a man whose mind is too great for his body, that he is "over-engined for his beam," they are using the language of the modern steam-boat sailor, which is supplanting the "shiver my timbers" lingo of Smollett and Marryat. In fact, with the incessant differentiation that is ever going on in human activity, the sources of modern slang become multitudinous, and it is impossible to prophesy which terms will be adopted by standard English and which will be ultimately rejected. For even a bishop can hardly get through the day without unconsciously using some word or phrase derived from the gipsy thief, the turf, the prize-ring, or some equally disreputable origin. No quality is more highly esteemed than *pluck*, which simply means *guis*. It is called a "blackguard word" by Scott; and, as late as 1864, its use by ladies surprises Hotten. The reader will be able to parallel the adoption of this prize-ring word by examples from the other sources indicated above. *Chauvfeur* (i.e. stoker), derisively applied by the Parisians to the earliest motorists, is now recognized English. E. WEEKLEY.

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**SLATES.**—Chaucer twice refers to writing on slates; Fryer, in 1698, couples them with "table books" (for memoranda); later they seem to have been commonly employed for "chalking up" tavern scores; but they were not employed for school purposes till about 1804, when Joseph Lancaster adopted them as a device for saving the cost of paper and pens. His example was universally followed so long as economy was a leading motive; but, a century's experience having proved clearly that they are open to serious objections, they are now banished from every school where efficiency is the first consideration. The objections are (1) educational and (2) sanitary.

(1) Slates cannot be handled without noise; the pencil requires a different pressure from the pen (for which it is supposed to prepare the way), and the stumps often used prepare the way for a wrong method of holding the pen; blunt pencils prevent a correct formation of the letters; even with sharp pencils there can be no distinction between thick and thin strokes; and the facility with which mistakes can be rubbed out fosters a habit of carelessness.

(2) The contrast between the colour of the surface and the writing is so small, that slates are trying to the sight; but the most serious sanitary objection to them is certainly that they are often a medium for the transmission of disease. While they were still in use, no attempt was made, as a rule, to confine a particular slate to a particular pupil; and when the attempt was made it was bound to fail often, so that in a week or two an infectious slate might circulate through a whole class. Often, too, no means were provided for cleaning the slates; if sponges were provided, they were sometimes allowed to get dry; and if the sponges were wet, the most careful teacher could not always prevent resort to the readier spittle and finger. The slates, therefore, became crowded nests of germs, so that diphtheria, tonsillitis, and other diseases, having once found admission into a school, spread with alarming rapidity.

Hence the use of slates at the present time is a sign of ignorance or of parsimony, and it is doubtful whether anything is gained by it. In Lancaster's time, rag being the only material, paper was dear; and pens, being all made from quills cut by the teacher, cost both money and labour. Now, when wood pulp, esparto grass, and other abundant materials are utilized, paper is cheap. Steel pens and lead pencils are also cheap, so that slates (frequently broken), slate pencils, holders, and sponges cannot be much cheaper. And, even if, by the use of them, a small economy can be effected, to save a few pence at the risk of losing a child seems poor policy. D. S.

**SLEEP, EXPERIMENTS AND OBSERVATIONS ON.**—These may be conveniently divided into two classes, according as they aim at studying (1) the

function and value of sleep; (2) the nature and conditions of sleep, as manifested in the bodily and mental state of the organism.

In work of the former class, the attempt has usually been made to study the function of sleep by observing the effects of its absence for longer or shorter periods. Experiments on animals have demonstrated the serious results of prolonged loss of sleep, especially on the young. Thus, puppies succumb after about four or five days of sleeplessness—the younger the animal, the shorter being the period required. Few cases of complete human insomnia have been met, but those reported have invariably ended fatally in the course of a few days. The experiments of Gilbert and Patrick in America showed that memory and attention suffered serious impairment in the course of a ninety hours' sleep fast, as did also muscular power; but that, apparently, complete restoration took place after a sleep in which only 16 per cent. to 35 per cent. of the lost period of sleep was made up. More recent work of Miss May Smith would seem to indicate, however, that, if a sufficiently delicate measure be employed, the injurious effects of three successive nights of insufficient sleep may be detected over a period of several weeks. Thus it is obvious that the need of the organism for sleep is a very pressing one—considerably more so, indeed, than that for food.

Observations on the nature and conditions of sleep have shown, however, that there are very considerable differences in the amount of sleep required by different individuals, and that this amount bears something roughly approaching an inverse proportion to the development and habitual use of the mental powers. Thus children sleep more deeply and longer than adults, the hours of sleep gradually decreasing from about twenty-two per day in the case of the newly-born child to seven or eight in the case of the normal grown person. Extensive observations would seem to indicate that school-children frequently suffer from insufficient sleep, the average shortage amounting, according to two fairly recent investigations, to no less than 1½ hours in Berlin and 2½ hours in England. The hygienic conditions of sleep, too, often leave much to be desired. On the other hand, the normal period of sleep for adults is sometimes much reduced, apparently without harm, especially in the case of persons of exceptionally active mind; idiots and mentally defective persons, however (as well as many savages), tend to resemble children in the exceptional depth and duration of their sleep.

Many measurements have been made on the depth of sleep by discovering the strength of stimulus required to awaken the sleeper. It has been found that, in the majority of persons, the depth of sleep is greatest about an hour after losing consciousness, that it decreases rapidly for the next hour or so, and then slowly till the time of waking. Similarly, it has been shown that winter sleep is deeper than summer sleep, and night sleep deeper than afternoon sleep.

Other experiments have dealt with the more physiological aspects of sleep, and with the nature of mental functioning during sleep, as manifested e.g. in the power of waking at a given hour or at a given signal, and in dreams (*q.v.*). J. C. F.

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**SLIDE RULE, THE USE OF THE.**—(See CALCULATING MACHINES.)

**SLOANE COLLECTION.**—(See LIBRARIES IN THE SEVENTEENTH CENTURY.)

**SMELL AND ITS DEVELOPMENT, THE SENSE OF.**—The most primitive of living things, consisting of a single cell, a "plasmodium," will travel towards an infusion of dead leaves and away from a solution of quinine; it is, therefore, affected by substances at a distance, and this projected sensation is analogous to the sense of smell. On the other hand, the chemical sensibility of the surface of the body, or of a part of it, corresponds to the sense of taste. In man, and presumably in animals, taste is limited to the perception of a few primitive sensations—sweet, sour, bitter, and salt—to which some authors add alkaline and metallic tastes; the savour of food and the bouquet of wine are perceived by the sense of smell. The nerves of smell pass to the brain from the special "olfactory area," measuring less than two-thirds of an inch in diameter, situated at the extreme back and upper part of each nostril. On breathing in, the air does not pass over this region, but only reaches it by diffusion and more readily on sniffing; it is more accessible to air passing into the nose from behind, consequently the perception of savours often remains when, from obstruction of the nose, the proper sense of smell is lost. Unlike sight and hearing, the sense of smell is not stimulated by vibrations, but is the chemical perception of particles in the air, or in the water in the case of fishes and other aquatic animals. For the proper working of the sense of smell, it is necessary (1) that the special nerves and their connections in the brain should be in order; (2) that the olfactory area should be moist and healthy; and (3) that the passage of air to the area should be unobstructed. Defects of (3) are the most frequent causes of loss of smell.

From the point of view of development, smell is the oldest of the senses: even the one-celled plasmodium may be said to possess it; it recalls associations, and gives pleasant and unpleasant sensations in a more definite way than other senses: it is more sensual. But in man, particularly in civilized man, it is to a great extent vestigial; and it no longer plays any important part in the education, in the building up of the mentality, of the individual. It is very different in the lower animals; the olfactory lobes of the dog-fish far outweigh the rest of its brain; the sensitiveness of the dog to smell is proverbial, and it is of great importance in its psychic and in its sexual life; of invertebrates, Fabre has shown that the ghost-moth flies great distances to its mate guided by smell. In certain individuals, such as wine- and tea-tasters, as well as among gourmets, the perception of savours, the "palate," is highly educated by practice and experience; but no attempt has yet been made to educate the sense of smell proper. Indeed, the method of training children is such as to repress its intellectual use: a child who smells its food or sniffs at other objects is immediately corrected, and is taught that it is vulgar to talk of things "smelling." Nevertheless, the sense of smell is of value in certain directions; medical men find it useful as an aid to

the diagnosis of various conditions, and some doctors (Dr. A. L. Benedict, *Medical News*, New York, 20th Aug., 1898) have advised its cultivation by their *confrères* for this purpose. H. S. B.

**SMITH, ADAM.**—The founder of modern political economy, was born at Kirkcaldy in 1723. He was educated first at the burgh school at Kirkcaldy, and was sent, in 1737, to Glasgow University. He excelled in mathematics and natural philosophy, and, in consequence of gaining an exhibition, proceeded to Balliol College, Oxford, where he completed his education. In 1748 he returned to Scotland and became, in succession, Professor of Logic and Professor of Moral Philosophy at Glasgow. As a writer, he made a reputation with his *Theory of Moral Sentiments* (1759) and *Dissertation on the Origin of Languages*. In 1763 he became tutor to the young Duke of Buccleuch, with whom he travelled for three years on the Continent, during which time he collected materials for his great work. After ten years of quiet work in retirement at Kirkcaldy, he published his famous *Inquiry into the Nature and Causes of the Wealth of Nations*. One of his chief friends was David Hume (*q.v.*), to whom he was indebted for some of the principles enunciated in his great work, and Hume gave the book high praise on its appearance. Smith advocated free play for individual activity and condemned Governmental interference with economic liberty. He advocated Free Trade, and his views were shared by both Pitt and Fox; but the outbreak of the French Revolution prevented the immediate application of Smith's views on liberty. But, in the nineteenth century, the *Wealth of Nations* became a standard text-book on political economy, and passed through many editions. It has been charged against Adam Smith that he taught the doctrine of *laissez-faire*, but actually he favoured Government interference where necessary, and advocated compulsory education and the performance by Government of duties which could not be done so well by individuals. In 1777, Smith settled in London, where he made the acquaintance of the members of Dr. Johnson's Club. He died in 1790.

**SMITH, SIR THOMAS** (1513–1577). — This eminent statesman of the age of the Tudors was born at Saffron Walden; he became a fellow of Queens' College, Cambridge, in 1530, and public orator of the University in 1538. He co-operated with John Cheke in the revival of the study of Greek and studied Roman Law. In 1540 he was appointed as the first Professor of Civil Law at Cambridge and studied law in Padua and France. He was ordained in 1546 and later took up public service and became, in 1548, one of the two Secretaries of State. He represented Liverpool in 1559 and was Ambassador in France from 1562 to 1566. While in France, at Toulouse, he wrote his well-known treatise *de Republica Anglorum*, *A Discourse on the Commonwealth of England*, dealing with the State as it stood in 1565. He again became Secretary of State in 1572 and Chancellor of the Order of the Garter. He died on 12th August, 1577. Smith was not only a Greek scholar but was versed in all the learning of that age and as such is to be remembered as an educationist. He has a further title to educational fame. Immediately after he became Secretary of State, on 23rd January, 1548, he introduced into the Commons a "Bill for making of schools and giving

land thereto" which was read a first time. The Bill was read a second time on 31st January, 1548, and on 9th February, 1548, "the Bill for giving of lands to the finding of schools" was read a third time and passed. The Bill does not appear to have gone to the Lords and never became law. It was probably intended to supplement the Chantry Legislation of 1547 (1 Edw. vi., c. 14) which proposed to apply the Chantry lands or the proceeds thereof "to good and godlie uses, as in erecting Grammar Scholes to the education of youth in virtewe and godlinesse, the further augmenting of the Universities and better provision for the poore and nedye." The Chantry lands were applied to no such purposes and probably the Bill of 1548 was intended to carry out the policy of the Act of 1547. If so, even Smith failed to achieve this noble purpose. It should be noticed here that in the *de Republica Anglorum* (lib. 1, cop. 23) Smith, in describing the yeomen class, says that members of the class "come to such wealth, that they are able and daily doe buy the landes of unthrifty gentlemen, and after setting their sonnes to the schoole at the universities, to the law of the Realm, or otherwise leaving them sufficient lands whereby they may live without labour, doe make their sade sonnes by those meanes gentlemen." Harrison, in his *Description of England*, (lib ii, c. 5) adopts this statement and says that the sons of yeomen were sent "to the schools, to the universities, and to the Ins of the Court." Smith and Harrison, in fact, note the changes worked by the spread of education always, in every land, in every age. In lib. i, c. 21, Smith points out "tokens of better education" as one of the marks of a gentleman. (See L. Alston's careful edition of the *de Republica Anglorum*—especially pp. vii–xi, 40, 43, 173—to which F. W. Maitland wrote a biographical preface. Cambridge, at the University Press, 1910.) J. E. G. DE M.

**SOCIAL ASPECTS OF EDUCATION.**—The presentment of educational theory of late years has emphasized, to a much greater extent than formerly, the function of the school as a social institution, and those aspects of development in which the child interacts with his fellows. "The older psychologists treated their subject as limited to the study of the mature human individual. . . . A further advance is marked by the appearance of collective psychology" (Professor Adams, Presidential Address, British Association, Dundee, 1921).

We owe the phrase "social efficiency" to the United States, as a term expressing one of the aims of education; and American writers, in turn, are indebted to those large undefined groups who, partly under the popular influence of Socialism, partly under the guidance of philosophic speculation, are re-shaping the various social sciences.

**The Beginnings of Social Education.** In one group of English schools, also, the social aspects of education have long been recognized. The reform of the English public schools in the first half of the nineteenth century was inspired largely by religious and moral motives, in which the sense of corporate responsibility of a man to his fellows played the decisive rôle.

Thomas Arnold, at Rugby, was the chief, but certainly not the only, reformer in this field: both in his writings and in Stanley's *Life* we can see how forcibly the conception of school as a community affected all the plans he adopted for the

moral development of schoolboys in this special type of school.

Apart from this quite limited group of schoolmasters, the thinkers of that period who were solicitous for social reform treated the education of a child as an individual affair, and the utmost that they expected from schooling was by way of instruction to the child in ideas about society. Thus William Ellis, in his Birkbeck schools, taught social economy; and even Herbert Spencer, while re-shaping Comte's science of sociology, was concerned, as regards education, only to reform the curriculum; there is no evidence that he investigated, or that he thought it important to investigate, the social influence of school comrades upon each other.

**The Awakening of Public Opinion.** It was only in 1904 that public opinion had so far advanced in these matters as to lead the Board of Education in its Introduction to "The Code" to insert a clause recommending the corporate life of school to the regard of primary teachers. The practical, sympathetic disposition of most English teachers has led them to make a ready response to suggestions of this kind; and both in primary and secondary schools many plans are now welcomed for developing corporate sentiment—plans which thirty years ago would have been regarded as lying outside the function of the teacher. School games, school excursions, and—in secondary schools—literary and debating societies, together with the house system (which is an offshoot from the public school organization referred to above)—these are examples of practical measures through which the teacher gives opportunity for the play of social influence.

**The Influence of Social Impulses and Suggestion.** The elaboration of theory in this field is of slower growth, and necessarily depends upon the advancement of mental science and of sociology. Pure sociology can offer us principles of action, general phenomena to be observed in all forms of society. The teacher's task is to trace the operation of these in school communities, as well as in the "authorities," political or other, which control schools and teachers. The recognition of social impulses serves as the starting point; and, as regards the school, we have to trace the development and transformations of the impulse from infancy to adult life. At each stage we find the school serving to mould the individual according to the common type: the child takes his manners, his opinions, from his fellows. The group is homogeneous: each member loses something of his individuality (or eccentricity), but gains in serviceableness to his group or class by taking on the conventions which society approves.

These processes are difficult to trace, because they operate in those sub-conscious fields of mentality on which the psychologist can even yet throw little light. In school lessons the child is consciously being directed to thought or action which is deliberate; both teacher and taught direct their attention of set purpose to the acquirement of knowledge or power.

Now the influence of suggestion is more elusive, and yet, when we study the outcome of school life as affecting disposition and types of character, we are convinced that many scholars are learning more, either of good or evil, through intuition and by social feeling than in the direct and obvious operations of the classroom. Thus as regards the cultivation of civic virtues, such as patriotism, the

two methods stand in sharp contrast. By lessons in history and civics, the English boy and girl can acquire intellectual conceptions of the land of their birth; but the glow of sentiment which enables these ideas to bear fruit in a great national crisis comes from emotions and instincts beneath the surface, and these find play in the life which the child lives with his fellows day by day at school, or in the social groupings of family and friends. It may, indeed, be held that, if a merely intellectual grasp of politics is secured without a solid basis of social sympathy, the pupil will develop an unstable character. On the other hand, if the child at school does not learn, to some extent, to think for himself apart from the influence of the herd, he will only become one of a mob or crowd, unduly controlled by social suggestion.

**The Effect of Such Considerations on School Curricula and Management.** Considerations of this kind are seen to be more and more important with the growth of huge democracies, populations brought up in the crowded streets of cities, subjected for some ten years of life to the powerful control of schools established by the State in the interests of national welfare. The gigantic European conflict now, we are thankful to say, over, has shown to the entire world how effectively the German Empire used the machinery of a scholastic system to mould its people in obedience to the ideas of its rulers: nations with a nobler ideal of human progress find themselves compelled to consider how far individual freedom in the young can be reconciled with the suppression and discipline of self, so as to enable boys and girls, when grown to adult life, to complete the reconciliations with a patriotism which can be virile without being fanatical.

In America, where democracy is being tested on a scale unknown to Europe, and where experiments in education are found in every variety, this social aspect of education is being investigated not only as regards the corporate life of school, but in efforts to re-shape the curriculum for social purposes. The publication of *School and Society* (by John Dewey) at the close of the last century, gave point and impulse to a movement which is only partially illustrated in the writers mentioned below. To such reformers, the pursuits on which children are engaged during the hours of school life should be largely chosen from regard to the social experiences which await them in their future lives. It would be rash to claim that this movement has attained firm ground either in theory or practice, but these investigations claim the careful attention of all students of modern pedagogics.

Finally, the influence of social psychology is being felt in attempts to re-state the theory of classroom management. The teacher and his class are jointly engaged in operations whose method can fairly be described as "social." Earlier exposition of topics included under the rubric "class management" offered little more than a series of practical hints on such topics as the art of questioning, or the rôle of punishment: the attempt to bring this important and practical realm of professional work into relation with principles related to collective psychology and sociology has scarcely yet begun, but the foundations at least are being laid.

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**SOCIAL CENTRE, THE SCHOOL AS A.**—Amongst the broadening conceptions dominating modern English education, none is more significant than that which recognizes the child as a social being, with claims far beyond those met by wider curricula, highly-skilled teachers, and extension of school life. All these things are excellent and necessary; but they are but a tottering superstructure if the foundations of decent living, in its larger, human aspects, are absent. It took us many years to discover that "education," in its narrower school sense, was, in too many cases, as cruel as it was futile, just because certain primary essentials of life—light and air, adequate food and clothing, sleep and rest, space and freedom—were missing. Hence the extraordinary network of ameliorative efforts which has gathered round the modern elementary school, until the daily programme may concern itself with breakfasts and dinners, milk and cod-liver oil, medical inspection and treatment, holidays, employment, thrift clubs, play centres, mothers' "At Homes," home visits—and not only "handkerchief drill," but, where possible, the handkerchiefs themselves! And in these many-sided activities thousands of friendly citizens are asked to supplement the teacher's efforts.

It is inevitable that so revolutionary a change in the conception of the function of the school should evoke searching questions from the critics. Is education really concerned with these things? Will they not seriously embarrass the school machinery? Is the school a suitable centre for social activities?

The answer to the first question lies in the growing conception of education as the organizing of all forces and influences which can help the human being to a higher life; the conviction that a child is not properly "educated" until each need of his nature has been met; and that, therefore, even school education must be so extended as to supply all essentials that are missing in the life outside. The embarrassment of the school machinery presents a real problem which has to be faced. It is quite evident that the teacher cannot be at once sole instructor and sole almoner, and that a large body of voluntary and expert assistance must be forthcoming from citizens outside the school.

**The Co-ordination of Social Efforts.** Given these conditions, the school would seem to provide an admirable centre for the co-ordination of social effort. Even as a mere registration medium, it provides that which no voluntary agency can secure—a complete census of almost every family likely to need assistance. Of the few groups left outside it, (a) the family with children as yet too young for school can be well left to the health-visiting agencies; (b) the family whose last child is at work has left its worst needs behind it; and (c) the quite old, unmarried, and childless people can be left to the many agencies already existing.

The school is non-political and, with the exception

of the voluntary schools, non-denominational; it is civic in origin and management, and, therefore, affords an admirable meeting-ground where all types of social workers can be brought into common action with a common aim, and perhaps a common fund. The work is hopeful, because it deals with children, who are the hope of the nation; it is varied enough to attract helpers of the most diverse gifts and tastes; and, with an adequate nucleus of trained helpers to unify and co-ordinate their efforts, there need be no overlapping, no one need be overlooked, and no one need be overworked.

The school buildings provide convenient centres for all kinds of communal intercourse outside school hours; whilst the education authorities themselves share the control of public parks, baths, trams, etc., and so can help to adapt civic resources to the children's needs.

The churches, often so tragically embarrassed with the literal "serving of tables," can be set free for their more direct spiritual function, and their people freed from the confusion between the material and spiritual loaves and fishes which constitutes such a serious menace to spiritual sincerity.

It is, of course, regrettable that many of the more material efforts made by school care committees should be necessary, but one valuable result may well be the collating of such a body of expert evidence as shall inspire strong action by those responsible for the larger adjustments of social and industrial life. But, even when material efforts cease to be necessary, the more personal and spiritual relationship should stand, and the school become a strong, unifying link between school and home life, vivifying the dry bones of educational machinery, humanizing the education given within the school, and broadening and enriching the life within the home. [C. E. G.]

**SOCIAL HISTORY, THE TEACHING OF.**—The social history of a people calls to its aid every one of the special studies which historians may pursue—using each to correct others. Internal politics cannot be excluded from social history, for politics has from time to time considerable influence on the general life. External politics cannot be excluded, because every nation, in its intercourse with other nations, comes under their influence. War cannot be excluded, for the structure of society is changed by war, as also by peace; war is the fruitful mother of invention, and the highest test of social cohesion and co-ordination. Constitutions, institutions, are part of the social structure. Economic history is a large part of social history, for a nation must be fed, housed, and clothed; and social relations are moulded and remoulded by operations of industry and commerce, by intercourse with foreign peoples, by changes in the distribution of wealth, and by consequent variations in the mutual position of classes.

Legal history cannot be excluded, for laws influence social relations. The life of a people cannot fail to be adapted to its natural surroundings, and therefore descriptive geography must be called in to the aid of social history. Religious tradition, and religious change are the most powerful of all the spiritual and mental forces by which society is sustained and modified. In literature we find an expression of the social mind, sometimes very partial, sometimes almost complete. The art of a nation is another means by which its aspirations are expressed, its desires achieved; the architectural



monuments of an age are, as it were, symbols which surrender a part of their meaning to imagination and insight. Dress is also a symbol of the inner social life: if we know how a people appeared in its habit as it lived, we have a chance of learning about it something which cannot be expressed in words.

Thus social history is the quintessence of all history, sublimated to present a nation in its structure and the functions of its continuous life. The aspect put forward by social history is general, national, popular; it is not concerned with the fortunes of individuals, except in so far as outstanding individuals have been the means by which national life has been moulded, the instruments of national evolution. It is not concerned with the details of campaigns, of diplomacy, of party strife, but it may be concerned with the more considerable results of these activities. Moreover, an illuminative episode, such as the false accusations of Titus Oates, may reveal the attitude of mind, the passions, the fears, of a people. Such typical detail can occasionally be introduced with good effect. Social history must deal with the broad relations, with the great movements, with the outline and colour of masses; and yet detail may here and there be required to show the texture of the whole substance. The presentation of social history is a selective art; on the skill of the selection and grouping and proportion depends the truth of the picture; and that truth is conveyed by suggestion, by impression, by atmosphere, as much as by express statements.

**Subject-matter.** Social history being thus a highly complex form of the historian's art, it might be thought that it could only be appropriate to the mature intelligence, that its lessons could only be conveyed to minds already stored with knowledge of men and things. Yet experience seems to indicate an opposite conclusion: the minds of young people are eagerly receptive of social history suitably presented. It is true that the youthful mind, and indeed the untrained mind of the adult, is more interested in individuals, in persons, in the heroes and the scoundrels of history, than in any general movement. Modern method in history, therefore, begins historical instruction with stories: stories of fiction and fancy and legend lead up to the adventures of great men, and the adventures of great men gradually introduce the mind to the conception of nations, of states, which respond to the stimulus of the great men and supply them with their resources. At about the age of 12, the immediate utility of this method is exhausted, and it becomes necessary to fix in the mind of the pupil a firm conception of the continuity, the succession, the procession of history. During this stage there should be established by degrees a firm chronological chain to which, one after another, increments of knowledge can be attached. Since personal attributes, personal achievements and adventures, are still at this age more easily apprehended than general movements, convenient links for this chain are supplied by the dates, e.g. of the English kings after the Norman Conquest. And, since political and military events attach themselves more easily to these monarchs and to the statesmen who were associated with them than social features or changes, the main hooks and rings on the chain will be political and military. It is easy to remember that King John signed Magna Charta; that Edward I conquered

Wales and endeavoured to conquer Scotland; that Edward III fought great wars in France; that Richard II turned the tide of the Peasants' Revolt and afterwards lost his throne and his life. It is, therefore, natural that the points first to be fixed on the chronological chain should be principally political, personal, and military; social movements present few sudden revolutions, few datable events; the Black Death, the Peasants' Revolt, the Reformation of Henry VIII, the Civil War, are exceptions: such social events, as they occur, will take their place in the chain beside the Norman Conquest and the battles of Crecy, Poitiers, and Agincourt.

But, before the Norman Conquest, our records present to us few outstanding political and military events; almost all the illuminative and interesting history is social history. All that we know of primitive man in this country is social history—the slow progress of culture from *Homo Pildownensis* to Caractacus; after written history begins, the Roman Conquest, the settlement of England by the Anglo-Saxons, the introduction of Christianity, the invasions of the Danes, the construction and consolidation of Alfred and his successors, the imposition of the Danegeld—all these are episodes in social history.

After the Norman Conquest—the feudal system; the manorial system; the new monasticism; the coming of the friars; the gradual emancipation of the serfs; the growth of industry, art, and commerce, together with the increase in public security—all these are movements of social rather than political history. With the introduction of printing, the Reformation, the Renaissance, the discovery of unknown lands, a new social era begins; the emancipation of the individual from manorial, communal, religious, intellectual bondage, leads to adventures on the sea and on the great continents of the new and old worlds. The new freedom of thought is seen in the new literature, from Shakespeare to Milton, after whom a new bondage—that of conventional good taste—begins to establish itself. In the eighteenth century, individual adventure continues, but on traditional lines; the main avenues of advance have been indicated: to follow them out is a sufficient task for the most enterprising.

**Selection leading to Proper Perspective.** For an exposition of this kind, we cannot use the proportions of such a history as Bright's; we must throw overboard much that John Richard Green has retained. The minutiae of Stubbs will be lost in the perspective of the more comprehensive view. We must leave their detail out of sight where it does not serve the purpose of our exposition; but we must weave into our fabric their conclusions. Literature can be used as illuminative material, art as an index to the mind of the generations that produced it. Thus we shall have our own work of selection, synthesis, interpretation, to carry through. The political and military detail with which an earlier generation stuffed their text-books must shrink to its true proportion in the general view.

A wholesale exclusion of embarrassing detail, a new selection, a new synthesis, will be needed, above all, when we reach the era inaugurated by the French Revolution. The activities of Parliament, the ups and downs of political parties, still hold in our text-books an undue proportion of space. If we are to do justice to the agricultural revolution, to the industrial revolution, to the

political revolution, the scientific revolution, the social revolution, that have been slowly worked out in the last 150 years, we must sternly excise all that is subordinate and transitory. We cannot linger over the campaigns of Wellington, we cannot even give more than a general survey and a sample of the splendid work of Nelson and his seamen. We may encourage—at the right time—our schoolboys and schoolgirls to read Kinglake and Kaye, but we shall not have much time to spare for the events which they narrate. Personages great in their own day and still great in memory will be reduced to relative insignificance. We can deal only with great movements, causes, consequences, conditions; the map must be small in scale, it must be accurate, it should not be overcrowded.

**The Question of Co-ordination.** Up to this point we have considered only the canons of our art, indicated the proportions to be observed, and charted a few great objects that should appear in our plan. The first necessity is information, the second is reflection, the third is selection, the fourth is co-ordination. For the young, the subject-matter requires special methods of treatment and exposition.

The history must be presented as a pictorial narrative, the subject of which is our people, our nation, our society. The language should be simple, but it must not be either undignified or childish. Everything that is mentioned should be brought into relation with present activities so far as possible. In the more ancient periods, this can best be done by the study of local history and local antiquities: megalithic monuments, Roman remains, churches, castles, mansions, cottages, natural courses of communication (rivers, valleys), natural boundaries, existing divisions (counties, parishes), battlefields, other relics of the past (caves used by men, camps, baulks, headlands)—all can be used to bring past life into touch with the present. In later ages, this method of illustration becomes less fruitful; on the other hand, in the more modern periods, points of contact with our own time become more frequent. The Bible is still in our hands, and the Bible explains the Puritans. The exploits of the Elizabethan adventurers lead up by an unbroken succession to our Empire and our world-wide commerce. Improvements in means of communication and transport have been continuous since the beginning of the eighteenth century. Knowledge has constantly increased since the recovery of Greek and Latin learning.

When we come to the most modern age, the young should be made to understand of causes and results as much as they are capable of understanding; prejudice, bias, party feeling, class feeling, should be excluded from the school. Great questions, such as the question of Free Trade, should be tested by their effects on the national life, and not treated dogmatically. The work of simplification presents formidable difficulties; but with sincerity, thought, and sympathy, they should not be insuperable.

Social history is not for the satisfaction of curiosity or the exercise of imagination; it is for the illumination of the mind, and in schools it should be an important instrument in the training of the citizen. Civic instruction, if undiluted and isolated, misses its mark; associated with the teaching of history, it can be made real, expansive, stimulating. To crowd the minds of young people with knowledge defeats the purpose of the teacher;

the desire for knowledge is easily extinguished by excessive cramming; the object of the teacher should be to foster the desire for knowledge and understanding. A book of history read for pleasure is worth more than many lessons learned under compulsion. If youth leaves school with the feeling that there are many splendid and useful things to be learned and that life is full of opportunities for learning, then the teacher may consider that he has achieved his end.

The pupil needs development as an individual; but he also needs development as a social being, as a member of a community which he can serve, and without which he is poor, helpless, defenceless, disinherited. The encouragement of this social consciousness is the work of social history—to enable the individual to rise above the family, the shop, the factory, the mine, the class, the party, and to feel himself a member of the people, the nation, the free empire, with all their traditions, their opportunities, their common prosperity or misfortune, their mutual help. The deliberate and direct teaching of patriotism is apt to be insipid and cloying; but, in history, the people, the country, stand revealed as the means of all well-being and worthy of all sacrifice. Social history is the true school of citizenship; and one object of school teaching should be to stimulate the study of social history throughout life, and its use for the guidance and illumination of the citizen. S. M. L.

**SOCIAL PSYCHOLOGY.**—This may be provisionally described as the scientific investigation of the psychic elements involved in the causation of social phenomena. This description does not serve to define at all accurately the province of social psychology; but it affords a provisional starting point from which we may reach an adequate conception of the general aim of the subject and its relation to sociology. The social psychologist is concerned primarily with the examination of the processes of mind, and of the results of those processes, as affecting the psychic equipment of the individual. But his conclusions are only important or significant in relation to those manifestations of mind which usually involve reactions of one individual upon others; in other words, his inquiry is naturally connected with conduct, and cannot properly be separated from the investigation of conduct as conditioned by mental causes. But conduct is not only a social phenomenon: it may be rightly called *the* universal social phenomenon. No change of importance occurs in social life which does not involve conduct, and all conduct has its mental causes and effects, whether conscious or unconscious. Consequently the psychologist, when he passes beyond the investigation of the processes of mind to the significance of those processes, becomes a social psychologist, whose business it is to make clear the psychic conditions operative in all social behaviour.

**The Relation of Sociology to Social Psychology.** So far, this field is seen to be co-extensive with that of the sociologist. It is, indeed, even wider, if the field of sociology is limited to the changes of structure in social life, or of those elements which are more or less stable, such as institutions, customs, traditions, and so on. For social behaviour has, and can have, no such limitations; it is involved in every change, whether important or unimportant; and the mental forces are operative equally, whether the resulting effects are stable or quite transitory.



Mental states and their determining conditions are certainly involved as important causal factors whenever laws are made, or marriage customs or ordinances are developed, or a military system comes into being—these are examples of changes in stable structure; but mental causes are equally involved, and are equally necessary to a full explanation, whenever a member of society initiates any individual activity, whether important or trivial. That is to say, the psychic factors must be taken into account alike in the large group movements, in which sociology is particularly interested, and in the infinity of minute changes which are taking place moment by moment within the groups.

But the psychic factors concerned are clearly only a part of the sum of causal elements which determine any social event. Many others, such as the environmental factors—geographic or economic—are equally important or even of prior importance in so far as they are themselves sometimes responsible for the mental processes and states which the psychologist finds operative as causes. And, since the sociologist is bound to take into account the whole causation of the social phenomena which he investigates, it is clear that his subject-matter possesses a deeper *content* than that of the social psychologist, though its extent may be actually narrower. In other words, although the field of inquiry belonging to the social psychologist is at least as wide as, and perhaps wider than, that of the sociologist, the latter is concerned with a much fuller content within that field. He examines *all* aspects of causation, while the social psychologist attends only to one, namely, the psychic or mental.

In relation to the sociologist, therefore, the social psychologist is one among several social specialists, providing *data* for the sociologist, while the latter, in turn, combines and correlates with the *data* provided by other specialists in order to reach a full explanation of any department of social causation.

**Scope of Inquiry of the Social Psychologist.** But when we turn to the questions—What is the nature of the *data* furnished by the social psychologist, and by what methods does he obtain them?—we are met by a difficulty due to the different claims put forward by various exponents of the subject. We are probably on safe ground when we assert that the *data* must consist primarily of direct inferences from the ascertained facts of individual psychology. The psychologist proper is able to lay bare the normal mental equipment of individuals of both sexes and at different age periods, and the frequency and causes of many abnormal variations of such equipment. Passing from this knowledge to its social applications, he should be able to demonstrate the effects of such normal or abnormal behaviour in the different relationships of life. That is to say, his aim should be to demonstrate how certain conditions of feeling and thought produce those attractions and repulsions, those sentiments, desires and attitudes, which cause not only the cohesions and antagonisms revealed in social life, but also the form and stability of institutions, and the aims and purposes of social effort. The explanation of social habit and social character will be largely in his hands; as will be the explanation of the great and small changes in the relations and activities of the social members. His starting point is the mental equipment of the individual, both normal and abnormal; his method is the inductive and deductive examination of the

effects of this equipment in socializing individuals; in providing the cohesive tissue of groups; in determining and modifying the forms of relationships; in predisposing men and women for different kinds of institutions; and in affecting their detailed behaviour in connection with the different groups, relations, and institutions.

It is, therefore, needless to ask whether the aid of the social psychologist is indispensable to the sociologist. Without it, it is impossible to explain at all how human beings have become socialized, and how they have become, or can become, moralized. Without it, further, nothing but a one-sided explanation is possible of the diverse forms of social structure and of the varieties of social and moral institutions; and, if inquiry is to be pushed in detail into the complex field of social progress, social psychology still takes rank as one at least of the auxiliary social sciences. Other specialists may claim a greater importance (there is no need here to balance claim against claim); but if the indispensable character of social psychology is sometimes ignored, this is due to preoccupation with other special elements of social causation—and perhaps, too, to the unfortunate fact that the early founders of sociology, including Auguste Comte, were not in a position to appreciate the science of psychology at its true value.

**Collective Psychology.** But the claim made by some social psychologists is rather different. It is urged with good reason that associated life itself produces psychic phenomena of an altogether unique kind. Owing to the fact of association, modes of feeling are generated and transformations of thought take place which must be regarded as specific psychic phenomena, and the investigation of these will form the true work of social psychology. This claim is sometimes expressed by contending that there is such a thing as a social mind, just as there are undoubtedly individual minds; and that the operations of the social mind form the proper study of the social psychologist. And, as the phenomena connected with the social mind only come into existence when individual minds are in contact in social groups, the entire subject begins after the work of the individual psychologist is completed. It must, therefore, form a special study largely independent of psychology as ordinarily understood.

Now, without denying the assertion that peculiar mental phenomena are generated by the effects of association, we must be content to point out that the attempts to make this the basis of a really scientific inquiry have hitherto been disappointing. There has been much speculation concerning the mind of a crowd and concerning the soul of a people; but it has been mere speculation, and often patently biased speculation. There has also been some quasi-scientific investigation into the laws of imitation and opposition of ideas in social groups; but this also has been rather suggestive than convincing. On the whole, the wisest course at present is to separate this aspect of the subject from social psychology, to distinguish it from the latter by the name "collective psychology," and to regard it as a much more speculative and dangerous department of the subject. (See also CLASS, THE PSYCHOLOGY OF THE.) E. J. U.

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*Photo by Valentine and Sons*

*Somerville College, Oxford*



*Southlands Training College—Front View of College*

PLATE LXXXV



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**SOCIAL REALISM.**—A term which has been used to denote the nature of the education and the studies in the schools of the sixteenth and seventeenth centuries, when the old studies of grammar, logic, and rhetoric began to be combined with the study of natural science.

**SOCIAL SCIENCE.**—The contemporary controversy and confusion in social studies is largely explained by the variety of approaches not yet co-ordinated. The main approaches are those of: (a) Speculative politics, with its two great subdivisions, respectively Individualist and Socialist; (b) Utopias—the idealist approach, from Plato to H. G. Wells. In addition to these two more traditional and abstract schools of social thought, there are later ones of more concrete and “scientific” outlook, viz., (c) History. The Italian jurist Vico is more than any other the founder of the historical school of social science. His chief continuators were Herder, Condorcet, and Comte. The corresponding modern German school calls its work *Kulturgeschichte*. (d) Rustic Economics, from Quesnai and the Physiocrats to Sir Horace Plunkett, and P. Kropotkin; (e) (Commercial) Economics, from Adam Smith onwards. Among the more “social” of contemporary economists are Hobson, Marshall, Gide, and Schmoller. (f) Then come Social Geography, e.g. Montesquieu (the founder), Buckle, Reclus, Ratzel, Le Play, etc.; (g) Anthropology, e.g. Prichard (*Natural History of Man*, 1843), Quatrefages, Tylor, Spencer, J. G. Frazer, Haddon, Westermarck, etc.; (h) Social Psychology, e.g. Wundt, Tarde, Le Bon, W. McDougall, Graham Wallas, etc.; (i) Naturalistic Ethics, e.g. Hobhouse (*Morals in Evolution*) and Sutherland (*Origin and Development of the Moral Instinct*). The vast bulk of books on Ethics belong to philosophy rather than to social science. (j) Aesthetics: among the few books that tend to bring this subject under social science, the most convenient is, perhaps, Hirt’s *The Origins of Art*. The great bulk of writings on aesthetics belong to philosophy and “criticism.” The collective writings under these ten heads taken in their largest sense (making Anthropology, for instance, cover both Folklore and Comparative Religion) constitute the body of social science. Outside these specialist works there are many general treatises dealing with sociology as a whole, but none of these since Spencer’s *Principles of Sociology* has won general acceptance. The various groups of specialists are loosely united only by the general conception of human society in evolution, of which they investigate particular aspects. The needed unification of the social sciences is retarded by lack of agreement as to method.

**Regional Survey in Social Science.** Of various attempts to develop a unified method for the whole field, the most definite and concrete (and presumably, therefore, the most hopeful) is that of Regional Survey. We devote the rest of this article to a brief outline of this method, leaving the student to pursue other aspects of social science by reference to the respective articles in a good encyclopaedia of recent edition, such as the *Britannica*. The Regional Survey starts from Le Play’s formula for the

study of the nature-occupations (Hunter, Shepherd, Peasant, Miner, Forester, Fisherman) as follows—  
 Place → Work → Folk.

On the uncultivated steppe, for example, grass is perennial, and here is the immemorial home of the pastoral life of which the patriarchal or communitary family, and its characteristic customs and ideals, are conditioned by the tending of sheep (i.e. by the *work* natural to the *place*). The labours of Le Play and his continuators of *La Science Sociale* have shown with what illumination the same formula can be applied to all the other nature-occupations. But, to study these nature-occupations on the spot, we do not need to go further afield than to the more remote regions of our own country, such as the moorlands, glens, forests, and estuaries of the Welsh, Scottish, and Irish Highlands, or even to the English Pennines. In the course of a walking tour down a typical valley of these regions, we can usually see something both of the nature-occupations and of their mode of family and folk life, and how these are conditioned by environment. Pursued systematically, such an investigation becomes a Rustic Survey. If we pause to specialize on its environmental aspects, our study becomes social geography; if on aspects of work, it becomes economics; if on folk life and custom, anthropology. Thus these three large sub-sciences of the social group fall into orderly relation to each other and to the facts under investigation. Attempts to co-ordinate these more determinist or objective sciences (social geography, economics, and anthropology) give rise to sociology in its more determinist and objective sense.

**Civic Survey.** Now the typical river valley that constitutes the unit of regional survey has, of course, its towns or cities at “nodal” points, and often its great city at the river mouth. In the survey of these towns and cities, the central interest is not nature-occupations, but culture occupations, commonly called vocations. On the more social side, it is not family and folk custom that we emphasize, but the group of people associated for some immaterial purpose (as of religion, political progress, science, literature, art, etc.). Such a group becomes an institution when lastingly organized. But the word “Polity” conveniently denotes all such groups alike, the more and the less permanently organized. In the higher forms of city life, polities largely determine vocation; young men (and, increasingly, young women) choosing careers in relation to the polities with which they are associated. Vocation freely chosen usually results in a development of personality which produces some form of art and thereby transforms “place” (environment) in terms of purpose. Thus, in the civic survey the terms and sequence of the formula used for observation and for interpretation are—  
 Polity → Culture → Art.

And this, we notice, is the formula of the rustic survey reversed, and read as Folk → Work → Place, but with more appropriate civic terms replacing those of the rustic formula. Pausing in our civic survey to specialize on polities, we are studying from one point of view Ethics, and from another (speculative) Politics; specializing on cultures (as embodied in militant types of personality), we study from one point of view History (as Biography); from another, Social Psychology (the “Ethology” of J. S. Mill); specializing on studies of environment transformed to art, our sub-science is Aesthetics. Thus do the more subjective or

idealistic social sciences take orderly rank in the scheme. And sociology in its more subjective aspect emerges as the endeavour to co-ordinate these. Rustic surveys combine with civic surveys to make the regional survey (*i.e.* systematic study of the various human societies inhabiting a given region). And as such surveys proceed city by city, region by region, their comparison and generalization yield a unified social science with adequate and orderly basis of fact. Amongst the advantages claimed for this method are: (1) It supersedes the old-standing dispute between the "sciences" and the "humanities" by bringing them together as the more objective and subjective approaches to the one single study of social life in evolution; (2) it continues the concrete open air method of Nature Study into the human field, thus finding its material in the objects of everyday observation, and putting the student face to face with these, and only falling back on books and classroom work as a secondary aid; (3) it parallelizes the social with the biological sciences, not through the old vague "organic analogy," but by precise correspondence of the elemental concepts in each order of science. Place, work, folk, are manifestly the social equivalents of environment, function, organism. The biologist, as his observations ascend the scale of life, sees organisms decreasingly hammered into shape by environment and increasingly modifying environment in terms of their own vital activities. So the social student reverses his determinist formula in passing from rustic to civic surveys, and adapts its terms to the observation and interpretation of life, individual and social, increasingly impelled towards the expression and realization of ideals.

V. V. B.

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#### SOCIAL SIDE OF A POLYTECHNIC, THE.—

"The Palace of Delight is in working order, and Stepney is already transformed," wrote Walter Besant in the last paragraph of his inimitable (some said "impossible") story, *All Sorts and Conditions of Men*, which was published in 1882. The People's Palace (now the East London Technical College) in the Mile End Road, opened in 1888, was the practical outcome of that novel.

It is probably an accepted fact that the social side of a polytechnic, or technical and social institute, is, in most cases, an adjunct to or result of the technical side of the work. It may, therefore, be a surprise to some readers to hear that the scheme under which the Northampton Polytechnic Institute, Clerkenwell, is administered provided first for the social work, and afterwards for the technical and trade side.

Much is heard of the educational side of polytechnics; less of the social side, probably because

the development of the social side is peculiar to some only.

**Special Accommodation for Social Work.** In describing the social work of one particular polytechnic, it will, perhaps, be interesting to consider first the accommodation provided for such activities. On entering the building, we find a large and artistically decorated hall, capable of containing nearly 2,000 people, at the end of which, above the platform, is a grand organ of excellent tone. Here, every Saturday, during the autumn and winter, are held concerts and other entertainments for the members of the polytechnic and their friends, at a nominal entrance fee, to which the public are admitted at a slightly higher rate. Here, also, during the season, dances are arranged, at intervals, for members and a limited number of their friends. Admission to these dances, as well as their general conduct, is under the careful supervision of the polytechnic staff. A short distance from the great hall is a large, well-equipped gymnasium, open to women members on two evenings, and to men on the remaining evenings of the week. The gymnastic classes are in charge of one of the best instructors in London, who is assisted on "women's days" by a capable instructress. Continuing along the corridor, we find a large and attractive swimming bath, which is open to women members, as in the case of the gymnasium, on two days of the week, and to men on the remaining days. The outside public, again, are admitted to the bath at a higher rate than that charged to members; here, also, capable instructors and instructresses are employed.

Ascending to the next floor (there is no passenger lift), we discover large refreshment rooms for the use of the staff, members, and students, where refreshments can be obtained at prices within the reach of all. Near the refreshment rooms are the three social rooms: one, devoted exclusively to men, is specially arranged for smoking, reading, etc.; another, on the other side of the corridor, is for the use of women members, and is a large, well-lighted, airy apartment, containing a piano, comfortable lounges, a bagatelle board, a sewing-machine, books, papers, and various games; the third is for the joint use of men and women: it is an artistically furnished room, for "quiet conversation and games only."

On the second floor are two very large rooms: one a well-stocked library, the shelves of which are filled with standard works of fiction, and technical and educational works in connection with the subjects embraced by the educational side of the polytechnic; the second is a reading-room, where the daily papers, illustrated weeklies, and magazines may be seen.

There are also rooms for club meetings, and small apartments for the use of club secretaries.

A most important outside adjunct to the polytechnic is a large recreation ground, situated in an open and healthy district, where provision is made for sports of various kinds.

**Clubs and Organizations.** A few words about the actual social life of the polytechnic. Who and what are these so-called "members?" They are "all sorts and conditions of men"—and women—in age ranging from 16 onwards—for, although an age-limit of 16 to 25 exists, it is a case of once a member always a member, and the age-limit applies only to the time of joining. In addition, from time to time, a few "over-age" members are

admitted, their names having been placed upon a "waiting" list: these are elected as vacancies occur, either in strict rotation or according to exceptional circumstances.

Clubs of various kinds have been established in connection with the social side, and these are as far as possible self-governing, that is to say, the "authorities" do not interfere in their general conduct more than is absolutely necessary. Some of these clubs are open to men and women alike, the largest under this heading being the Lawn Tennis Club, which meets at the recreation ground already mentioned, and is, from its open-air, summer-weather nature, perhaps the happiest and most sociable of all the clubs, and probably the largest. To tennis, on Saturday afternoons, come the young men and maidens—and also the young fathers and mothers, who, in many cases, owe their introduction to each other to the polytechnic; with the latter often come their little families, to enjoy the freedom and fresh air. There is a pavilion on the recreation ground containing comfortable dressing-rooms, and a refreshment room where light refreshments are served at very moderate prices.

Another club which is open to both men and women is the Rifle Club, and in this sport the girls are not much behind the men, and even, in some cases, outrival them.

Exclusively for women are the Hockey Club, which is always popular with the athletic members and attracts a large number to the recreation-ground during the playing season; and the Swimming Club, which is, like the Hockey Club, very popular, and contains athletic girl-members who perform wonderful diving feats, and whose great ambition is to swim a mile as soon as possible. The latter club holds an annual display to which the outside public are admitted, which is always a great attraction.

In connection with the gymnastic classes are separate clubs for men and women, and the object of these is to maintain the interest of the students and to encourage sociability. Each club holds an annual display, open to the public, and from time to time the members of the two clubs enter for outside competitions.

On the "men's side," in addition to the Gymnastic Club, are the Cricket and Football Clubs, which are always well-filled and successful. Another large club for men is the Cycling Club, which holds, with the three named above, an excellent position in the world of sport.

**Music, Etc.** In the polytechnics that have a large social side is a body known as the Stewards' Association, which consists of men members who voluntarily assist at all big functions held in the building, such as the weekly concerts and entertainments, dances, big social evenings, displays, etc.

Music is a leading feature of the social side. The choir is always popular and does excellent work, and this may be also said of the orchestra: both of these, of course, are open to men and women; while the military band, another most successful institution, is for the sterner sex alone. Attractive performances are given in the large hall, during the season, by these three bodies collectively, separately, or in conjunction with an outside concert party. Dramatic performances have recently been sanctioned and are given in some of the larger institutes; they are a source of great delight to both audience and performers. Here are known

the joys of "dressing-up" and "making-up," and "being beautiful for just one evening." The performances are open to the public.

A word about the dances. These, as has been already said, are held in the large hall of the institute about once a month during the season, and are among the most enjoyable social events of the year; evening dress, by the way, is not compulsory.

Whist drives are another great attraction, and are held, as are all the social functions, under the careful supervision of the staff of the institute.

And the fees? They are absolutely nominal, and amount to but a few pence a week.

Has the "Palace of Delight" indeed materialized in accordance with the suggestions of Sir Walter Besant? A. M. T.

**SOCIAL WORK, HOW TO TRAIN FOR.**—Social workers are people who go forth believing that among their neighbours are some who are finding the chances and changes of life rather more than they can tackle successfully, and hoping they may be able to "lend a hand." If it is possible to analyse into three abstractions so subtle an ambition, the social worker will need, in the highest degree, strength, skill, and sympathy. Strength will come from a belief that, in our community, the resources—spiritual and material—of neighbours, and their courage to attempt the task, will prove adequate to the succour of "him that fell among thieves." This faith will be most readily acquired by working side by side with a social worker who actually DOES successfully tackle disastrous situations of apparently irremediable character. With no other equipment, however, we shall faint by the wayside in the absence of that dauntless personage.

This is the plea for theoretical training, and we ask people to read big books, go to universities, and attend lectures. Their tasks, it is true, will appear simple when compared with the high-sounding preparation. For example, they will have to see that a child is put to bed at 6 p.m. instead of 10, and taken to the dentist when its teeth become defective; to persuade a boy to prefer low wages in a skilled, to high wages in an unskilled, trade; to cajole a girl out of her tantrums at a club; to verify the wages of a man whose wife ought to go to a convalescent home; or to convince an old woman that the infirmity nurses do mean to be kind, and that the medical officer is not an assassin. Amid these homely tasks, they will need intellectual equipment to defend them against those who find it both easier and more congenial to emit sweeping denunciations of the social order than to wrestle with the sins and sorrows of individuals.

**Theoretical Training.** Hard-working tutors and lecturers are at present attempting to abridge the period required for practical and theoretical training into one or, at the most, two years. From this hustling process, the students emerge with crude conceptions of their work. They are probably enthusiastic supporters of what they suppose to be the legislative programme of their favourite lecturer. Their descriptions of the work of the agency in which they have worked as learners are superficial travesties. The chief sufferers in this connection are the Charity Organization and kindred societies. It is impossible to train a student to attack the difficulties of an individual or family unless you are cognizant of the antecedents of the trouble. It is only at a C.O.S. or similar office that

you get an adequate "history" upon which to base your diagnosis.

The social life of a great industrial community is, to the uninitiated, such a bewildering vortex, that but little progress is made towards an insight into it in those brief fragments of time, scattered through one year, which is all the university tutors and lecturers can possibly spare their pupils for practical work. The examination upon which the diploma is chiefly based depends upon the work done in and for the lecture-room. This gives the latter a prior claim in the eyes of the student. The universities are mostly feeling their way to two-year courses, but the students so frequently get appointments earlier that the best use of the second year is still undecided. The students speak of it as "research." What is badly wanted is the establishment of a university degree in the science and art of social work, with so high a standard that only the best workers, voluntary or paid, in the best social agencies, voluntary or official, would be able to obtain it, and these only if they had continued, during several years of actual work, their reading under supervision and attendance at lectures—something on the lines of the London or Cambridge M.D. Once such a standard had been set up, the scandal of young people interfering with family life and industrial conditions with a smattering of the latest "isms" would disappear.

**Practical Skill.** Our second abstraction was skill. Around the homely tasks of the social worker is a mass of legislation and an imposing array of administrative hierarchies. It is of little avail to hear these described in a lecture room: they must be met with at work. It is no business of officials to reveal these mysteries: this must be specially undertaken by an expert who will spare time, *in the course of work*, to unravel for the beginner their tangles. Furthermore, the working of statutes and departments varies vastly with the temperaments and idiosyncracies of those working them, and this is baffling to a beginner unaided. J. C. P.

**SOCIALISM AND EDUCATION.**—The attitude of the Socialist Movement to the question of education may best be understood by an appreciation of the general aim of socialism. Socialism aims at the democratic control of industry, and at the popular control of social organization. It does not assume an industrial and social system imposed upon the people and controlled by an aristocracy of wealth or class. It follows, therefore, that socialism postulates an educated democracy. The main grievance which Socialists have against the Capitalist System is that such a system allows wealth to be centred in a few hands, and, therefore, the means for acquiring education are also a monopoly of the same class. The slow and gradual development of a national system of education has in a small degree opened up opportunities for the children of the poor to acquire some measure of education, but economic poverty still prevents the vast majority of the working classes from receiving an adequate education. It is a commonplace of Socialist propaganda to say that the proletariat are so contented in their present condition because they are too ignorant to understand how they are being robbed by the economic system or to realize how they are misled by plausible politicians. The wide diffusion of education, Socialists declare, is essential to a popular understanding of the economic and social problem.

**Past Achievements.** Holding these views, the Socialist parties in Great Britain have always taken a keen interest in education, and an educational programme has, from the first, been an important part of their constitution. Socialists have not been blind to the fact that, under capitalism, an educated working class may be a more profitable instrument for capitalist exploitation, and that, under competition, the more general education became, the lower its remuneration was likely to be. But that knowledge has never been allowed to interfere with the enthusiasm of Socialists for greater educational facilities for the masses, because they knew that the economic consequences under capitalism would be only temporary, and would, in fact, be a valuable education in themselves of the nature and injustice of the existing economic order. The British Socialist parties have always taken a broad view of education, and Socialists have been among the pioneer advocates of physical and technical education, in addition to their strong support of secondary and university education for the children of the working classes. The old Social Democratic Federation was for many years a voice crying in the wilderness demanding the feeding of school children. The Socialist parties, too, have always taken a very strong line on the question of child labour, and a prominent item in their programme has from the first been the raising of the age for leaving school to 16 years.

In the days when the school boards in England were directly elected, the Socialists always took a very active part in the elections, and they secured representation on these bodies in considerable numbers, where, on the admission of their political opponents, they did very excellent work. They were among the most active of the educational reformers who were endeavouring to broaden the educational system by introducing special classes for defectives, school clinics, meal centres, and the like—matters which are now recognized as essentials of a national education system. It is worth noting that the city of Bradford has the most advanced physical education system in the country and, at the same time, the largest local Socialist organization. The two things are closely related.

**Programme for the Future.** The unaccomplished education programme of the British Socialist parties aims at the raising of the school-leaving age to 16 years, and the giving of maintenance grants to children in both primary and secondary schools; and beyond this age to limit the employment of boys and girls under 18 to half-time, so as to enable such children as are not continuing their education in the secondary school or university to obtain further training. The Socialists do not demand in the present industrial circumstances that every child should be passed through the full secondary school and university course, but they do demand a vastly increased number of scholarships, so that every child capable of taking useful advantage of an extended educational career should be able to do so. But they urge very strongly that there should be a radical reform in the industrial training of children; that instead of boys and girls being put to work as soon as possible for wage-earning purposes, their industrial occupation should be in itself an education to fit them to become highly trained and skilled craftsmen.

On the vexed question of religious teaching in the primary schools, the British Socialists have always taken a very definite line. The programme

of the Independent Labour Party—the largest Socialist party in Great Britain—has from its inception contained secular education as a plank. But, while being opposed to the teaching of dogmatic theology in the public schools, the Socialists strongly advocate more attention being given to moral teaching in the schools; and they desire that in the later years of school life more time should be given to instruction in the duties of citizenship, and the principles of peace and internationalism.

The British Socialists have established Sunday schools for the education of the children of Socialists. There are about 120 of these schools in Great Britain, with a membership of 12,000. In these schools the children are taught simple economics, morality, and humanism.

The Socialist educational ideals and programme have been in a large measure adopted by the Trade Union Movement, and its educational policy may be said to be modelled on the lines of the Socialist programme.

P. S.

**SOCIÉTÉ NATIONALE DES PROFESSEURS DE FRANÇAIS EN ANGLETERRE.**—The Society of French teachers was founded in 1881 under the honorary presidency of Victor Hugo, to further and improve the study of French. It is open for membership (10s. 6d.) to French teachers of French birth or parentage or others proficient in the French language. It has a constantly growing provident fund, and is registered as a Friendly Society, but its main object is to introduce to schools and families capable masters and governesses. It also holds monthly lectures given in French by members and others, for which admission cards can be had free from the honorary secretary. The Committee also holds monthly and annual competitions among boys and girls in private and public schools. The prizes given by the President of the Republic, the Minister of Education, the Ambassador, and other benefactors are presented by the Lord Mayor of London. Many gentlemen and ladies, not in the profession, but interested in education, are honorary members (£1 1s. 0d.) of the Society. The central offices are at 7 Red Lion Square, London, W.1.

**SOCIETY FOR PROMOTING CHRISTIAN KNOWLEDGE, THE.**—"The Church's Oldest Missionary Society" was founded, in 1698, as a result of the efforts of Thomas Bray and Robert Nelson, whose deep anxiety was aroused by the spiritual dangers to which young men in London were exposed in the time of Charles II. The founders were deeply impressed with the conviction that the worst evil of the day was the "barbarous ignorance of the common people," and their first efforts were directed to letting in the light of Christian knowledge on the darkened minds of the young at a time when the idea of national education had not begun to dawn on the mind of the State. A century later, a small sum was voted by Parliament to aid voluntary schools, and 172 years later (1870) the State definitely undertook elementary education.

In 1704 the Society had formed fifty-four charity schools, numbering 2,131 children; and by 1712 over 600 schools had been established in England and Wales, the number rising to nearly 2,000 in 1741. In 1811 the magnitude of the Society's work led to the formation of the National Society (*q.v.*), which took up the work of the schools. The parent society has changed the base of its operation to the training colleges. It has founded and maintained

St. Catharine's College for Women at Tottenham, and has assisted liberally various diocesan training colleges. Prizes of £10 each are awarded to a number of students who are placed highest in the Archbishops' Examination in Religious Knowledge, and who subsequently enter a Church training college; and lectures on religious subjects are provided in L.C.C. training colleges in the dioceses of London and Southwark.

**Libraries and Publications.** The early leaders of the Society quickly added to their work in teaching the young to read, the equally important task of providing reading matter. "On one of the first dim pages of the Journal we find the names of those who promised annual subscriptions for promoting Christian Knowledge by raising Lending Libraries in the several market towns of the Kingdom, and by distributing good books." As the pioneer of public libraries, the Society rapidly extended its labours, and, from a modest beginning of "600 copies of Dr. Bray's 'Discourse upon the Baptismal Covenant,' bound in sheep's leather, to be sold at eighteenpence per book, and the clear profits applied to the founding of Lending Libraries," the Society had in 1905 to record a total of 11,078,135 publications exclusive of Bibles, prayer-books, and tracts. At present, many thousands of pounds' worth of books are given away annually by the Society to working men's clubs, soldiers and sailors, parish libraries, and other institutions.

**Emigrant and Missionary Work.** In 1836, Mr. W. E. Gladstone asked the Society to consider how it could spiritually help the crowd of emigrants who annually left England. The work was at once undertaken, and now includes the provision of port chaplains, long-voyage chaplains, the supplying of letters of introduction to chaplains at ports of arrival, counsel to those in need, care by matrons of girl emigrants, and help to churches beyond the seas.

The Society's foreign educational work falls under three heads—boys', girls', and industrial schools. India absorbs a large share of its interest and funds, and much attention is paid to the training of native helpers, for it is believed that their influence must be more effective than that of Europeans.

St. Mary's High School for Native Girls, Rangoon, is an old wooden building. The municipal authorities order a modern structure. The Bishop of Rangoon is preparing new buildings of brick and steel to accommodate 500 children, of whom 100 will be boarders. The scholars include the children of many wealthy Buddhists, as well as many absolutely poor Christians. Situated in the most crowded part of Rangoon, the school, though poorly equipped, is in a flourishing condition.

Other schools of the Society are to be found in Australia, Japan, Africa, and North-West Canada; and, in furtherance of the work of education, the provision of books for native races in their own tongues has been most comprehensively carried out. Commencing with the Bible in Welsh in 1720, the Society has, at great expense and with patient toil, gone on until now it publishes many varieties of books in a hundred different languages and dialects.

The secretary's address is St. Martin's Rectory, St. Martin's Place, London, W.C.2.

Members are elected on recommendation of a subscribing member as "disposed to aid the pious and charitable designs of the Society," and an annual subscription of one guinea or more entitles the subscriber to members' privileges.



**SOCIETY FOR THE DIFFUSION OF USEFUL KNOWLEDGE.**—The object of this Society, formed in 1825, was to impart useful information to all classes of the community, but particularly to such as were unable to avail themselves of experienced teachers. To attain that object, the Society proposed the periodical publication of treatises under the direction and with the sanction of a superintending committee. As numerous societies already existed for the dissemination of religious instruction, this Society proposed not to publish any treatise containing matter of "Controversial Divinity," nor to "interfere with the principles of revealed Religion." Among the prominent movers in establishing the Society were Lord Brougham, Lord Althorp, Lord John Russell, and Matthew Davenport Hill. Under the auspices of the Society, many volumes were published, and the scientific treatises were made simple enough for the use of those who studied without a teacher. Among its publications were a *Biographical Dictionary* (1842) and the *Penny Encyclopedia* in thirty volumes (1833-1858).

**SOCIETY OF ARCHITECTS, THE.**—This was founded in 1884 mainly for the promotion and advancement of architectural practice, and the maintenance of the honour and interests of the profession of architecture. It is prominently identified with architectural education. Through its efforts the Beaux Arts Committee was formed to promote improved methods of teaching design, and the first architectural atelier in London established, where the high principles of architectural design are inculcated.

The Society has a membership of over 1,000 corporate members in Great Britain and in distant parts of the Empire. Architects who are over 21 years of age and have passed the qualifying examination, or who, being 30 years of age, have been engaged in the practice of architecture for seven years, or as assistants, or assistants and principals, for ten years, are eligible for membership.

Examinations for membership are held in London and in various South African centres, lasting five days, and including eight subjects, of which seven are compulsory, as follows—

(1) Architectural composition and design; (2) architectural history; (3) building construction and materials; (4) shoring, underpinning, and dangerous structures; (5) house drainage and sewage disposal; (6) specifications and conditions of contract; (7) the mechanics of building construction; and one of the following: (8) easements, dilapidations, and Building Act regulations; (9) quantities and prices; (10) land surveying and levelling; (11) setting out and supervision of work; (12) monumental design.

For the use of members, the Society publishes a monthly journal of its proceedings.

Persons above 16 years of age, who are preparing to follow the profession of architect, may be registered without examination as students on payment of an entrance fee and an annual subscription. A student is expected to sit for the graduation of membership examination before his twenty-sixth birthday.

The office of the Society is at 28 Bedford Square, London, W.C.1.

**SOCIOLOGY, THE TEACHING OF.**—As an academic subject, sociology has suffered many things both at the hands of its friends and its

enemies. Its friends have too often assumed a confidence that was far from being justified by the actual state of our knowledge, and have laid down large generalizations which, upon examination, have either broken down or have dissolved away into verbiage. Its enemies, much heartened by these failures, have denied its claim to be a science, and have forced on the student of the subject long preliminary inquiries into metaphysical questions, which in reality have very little bearing upon the point at issue, but which occupy the time and energy that might be spent upon the study of the subject itself. In reality, the question whether a science is possible or not can only be solved *ambulando*. If a field of inquiry can be explored with detachment of mind, with accuracy, and with system, it yields scientific results; and if the progress of exploration reveals any unity within the field, the result is a definite "science" with a distinct character of its own. In the field of social inquiry, the first of these results is definitely attained. In many directions, social phenomena have, in fact, proved amenable to dispassionate, systematic, and accurate treatment. The question that remains is as to the possibility of unifying or systematizing these results. In other words, we have very many sociological inquiries which are, beyond cavil, "scientific" in character. The problem before sociology is that of so relating them as to form a connected science of society.

**Connotation of the Term "Sociology."** It follows that there are two distinct senses in which the term "sociology" can be used, whether in relation to inquiry or to education. The first is the very general sense in which economics, social statistics, comparative religion, comparative ethics, political theory are all branches of sociology, all being inquiries of a scientific character into one area or another of the vast social field. In this usage, the adjective "sociological" is more in place than the substantive "sociology," for all these inquiries move within the social field, but none of them views it as a whole. In this sense of the term, a good many recognized subjects of academic treatment are avowedly sociological, and sociology has already a recognized part in education. But, in a more restricted sense, sociology means precisely that which the sociological specialisms are apt to omit; that is to say, the attempt to view each portion of the field in its relation to the remainder. Historically, the modern development of sociology arose largely as a protest against economic specialism. A certain important school of economists proposed to pursue the inquiry into the production, distribution, and consumption of wealth in abstraction from other aspects of social life. The more cautious thinkers, indeed, were always careful to recognize and explain the limits which this method imposed upon their reasonings. They saw that any conclusions drawn from partial premises could only be hypothetically true; but they argued, reasonably enough, that their procedure was just like that of the student of a physical problem, who, to simplify his task, begins by omitting to consider friction. The effect of friction could always be brought in afterwards, and so could the influence of other motives than those with which the economist made his calculations. Unfortunately, in questions concerning living and thinking beings, the intermixture of effects is not so simple as it is in the physical world. In mechanics, a force *P* has its measurable effect, whether another force *Q* impinges

on it or not. In the living organism and in social life this is seldom the case. It would be more often truer to say that the "force"  $P$  is modified, even transformed in its action, by the coincidence of  $Q$ , so that when the two act together we do not get a result which could be estimated from the known action of either taken singly, but something that may be quite different from any result that we should obtain *a priori* by combining the separate effects. Hence it came about that, with the progress of abstract economics, arose a demand for a more concrete study of the working of social systems, a demand partly met by the development of economic history, partly by the closer examination and statistical treatment of contemporary social phenomena.

But this development gave rise to an inverse difficulty. The more concrete and detailed our study, the more we have to confine ourselves to the particular case, and the more cautious we have to be in extending our results to any other case, still more in generalizing about society at large. We may trace the history of the "great industry" in England, for example, say, from the middle of the eighteenth century onwards. We may analyse the conditions operating in the particular case and arrive at valid conclusions as to the effect of certain causes in England during that period. But the moment that we begin to apply our results, to speak of causes in general terms, to infer the further course of events, still more to attempt generalizations prescribing what must or will happen in any given society, we find ourselves on highly perilous ground. We might, indeed, be sure that the same consequences would recur if all the conditions—including the minds of men—were the same; but, as it is quite certain that no two social situations ever will be the same in all respects, this does not help us very much; and by the time that we have guarded our generalizations sufficiently to make them certain, they have been reduced to something so vapid that they are not worth pen and ink. We seem, in fact, to move between abstract generalizations which are precise but untrue, and concrete pictures which cannot be generalized at all. Between this Scylla and Charybdis is there any place for a sociology which attempts a general view of society that shall be something more than a historical picture of some given people in some given epoch of its life?

**Sociology as a Science.** It may be replied, to begin with, that, in spite of all presumptions to the contrary, the essential object of science is not generalization, but simply truth; and if in any direction the truth happens to be that generalization is hampered by peculiar difficulties, or even that it is wholly unattainable, this is quite an important truth for science to establish. It is important to ascertain the limits of our knowledge and the conditions on which these limits depend; and if a science could yield only a negative result, still, if that result is true, it is worth while to know it and to have it accurately stated and firmly established. But, in reality, sociology is not so negative as this. One result at least of the union of partial theories and concrete investigation is a much richer conception of the nature of society and the mode of operation of social forces. As we sort out distinct social influences and endeavour to follow their separate development, we become more fully impressed with their complex and multifarious interconnections. We feel the bearing, say,

of economic changes on religious movements, and the effect on both of scientific discoveries or philosophical innovations, and we obtain a richer meaning for the fairly obvious truth—a truth which is, after all, a generalization—that social life is a unity, in the sense that all its parts are so interconnected that a new departure at any one point will have reverberating effects throughout the whole. This does not tell us what those effects may be, and to determine them in any given case is far more difficult. Yet a concrete grasp of the unity of social life—I would call it the organic character of society, but for my fear of being suspected of improper use of metaphor—is fundamental to sociology, and is at least sufficient to guard those who appreciate it against a good many errors both of theory and practice. It destroys at a stroke both the materialist and the idealistic interpretation of history. For the economic basis of life, the material environment, the acquired methods and instruments of exploiting it, and the nature of the industrial organization are only one element or one group of elements in a much greater totality. Changes in the residual elements may revolutionize the economic structure. For illustrations, we need go no further than the applied science of our own time, resting as it does on theories worked out by thinkers whose interests were not economic but speculative, and who owe their success to a long chain of causes in which philosophic, religious, and (to speak generally) intellectual and spiritual rather than economic and material influences are easily predominant. *Mutatis mutandis*, the same thing may be said of the intellectual, moral, and spiritual influences themselves. They are not uninfluenced by the economic structure or the material conditions of life. Men's ideals accommodate themselves to the possibilities even while modifying or selecting from among them. There is everywhere an interaction of factors. If the economic situation has often determined the realities of political power, it would be equally true to say that the possession of political power has remoulded economic circumstances to suit it. There is on all sides and at all times struggle and interaction, seldom—I would say never, except as the result of a hard-bought victory—the sheer dominance of one factor over all the rest.

**Scope and Aim of the Study.** Sociology, then, as an academic study begins, I should say, with the conception of society as a whole of interconnected, interacting parts. Its ideal would be so to develop this conception as to serve for a unifying link between all the branches of inquiry that explore different parts of the social field; and though complete success in this ambition must necessarily be very far off, I would contend that for educational purposes it is of high value for the specialist in any one branch to have the eye of the soul turned from time to time towards the whole. If he is made to realize that his subject is a fragment not fully intelligible till pieced together with other fragments, he will eschew hasty generalizations and put a more just value on other investigations than his own; one result will be that when two schools of inquiry claim the same field, as not infrequently happens in social controversy, there will be some means of adjusting matters between them. For, if we start with the conception of society as a complex whole of interacting forces, we naturally go on to inquire what sort of a whole it is, and what is the general nature of the interacting forces. Here, to take only one point, we come at once upon the question

of the relation of sociology to cognate sciences: to geography, for example, since every society has a physical environment; to biology, since the units of society are beings subject to the laws of life and death, of heredity and variation; and to psychology, since the relation of these units depends on impulses and feelings, ideas and beliefs generated in individual minds. I must not here enter upon any of the actual controversies involved, but would point out merely that one of the first elements in the answer to the question, What sort of whole Society forms? is that it forms an organized structure. It may be organized on very various methods and in very varying degrees, so that in some cases the organization is of a very low order; but, where a society forms a definite whole, there is some kind of regular relationship between its members—conscious, unconscious, or partly conscious, on their part—in virtue of which they co-operate for certain purposes. The development and extension of such organization seems, in fact, to be the measure of what we may legitimately call progress in society. This conception, once adequately appreciated, serves at once to distinguish sociology from any science dealing with the individual, or with such an unorganized and miscellaneous mass as the race, and also to indicate its relation to any such science. For, on the one hand, the social organism grows out of the needs and the characteristics of the component individuals; and, on the other, any given individual is profoundly modified—and that in a manner quite unpredictable from the mere knowledge of his innate capacities—by the social atmosphere in which he grows up. Thus the actual subject of sociology is organized structure, and the mode in which it is handed on or modified from generation to generation; but, in the understanding of this process of tradition and modification, the knowledge of the individual and the conditions under which the type is preserved or modified is a necessary factor. Without going further into controversial issues, what has been said may be enough to show that an essential object of sociological teaching is to assist the social student in a just orientation towards other sciences that deal with man, his physical and moral nature, and his environment.

**Social Science and Philosophy.** The most definite of these questions of orientation is one which concerns the relation of social sciences and philosophy. To many thinkers, the kind of analysis which has been here sketched belongs rather to philosophy than to science, and whenever I have written science they would prefer to write social philosophy. In my view, which I must merely set down without attempting to justify it, there is no ultimate distinction between philosophy and science except that between the whole and the parts; but, proximately and in relation to the actual division of intellectual labour, philosophy is that which is concerned with ends and values, science that which is concerned with matters of fact. Now the ends and values of action are the subject of ethics or moral philosophy; while the analysis of society, the attempt to discover what it is and how it grows or decays, is an inquiry moving in the region of matter of fact and is, therefore, what I should call a science. Between them, however, there is an important link; for the values which ethics determines should be applied to the great institutions of society—to Property and Marriage, Law and Government, Internationalism and War—just as

they should be applied to the conduct of individuals. This application constitutes, as I conceive it, the sphere of social philosophy, which is dependent on ethics for its principles as it is on social science for its facts. Whether it be called a part of sociology or not, social philosophy must form a part of the training required of a sociological student.

The educational place of sociology, then, in the stricter sense, is, I would suggest, at the centre of sociological teaching in the wider sense. It is the unifying point of economic, historical, statistical, and other kindred subjects. It provides a meeting-ground for those who pursue specialisms which are otherwise separate and disconnected, and a position of vantage from which they can obtain a general view of territory that lies adjacent and perhaps intermingled perplexingly with their own. Aiming in ideal at a synthesis of these sciences, it is in the meantime a discipline which conduces to mutual understanding. Finally, as it relates the social sciences *inter se*, so it defines their collective relation to other sciences which deal with man the individual, and to the philosophy which endeavours to grasp the end of his efforts and the meaning of his life.

L. T. H.

#### SOCRATES AND THE SOCRATIC METHOD.—

For the scanty details we possess as to the events in the life of Socrates, we are indebted chiefly to the *Memorabilia* of Xenophon and the *Apology* of Plato. These dwell for the most part upon his activity as a public teacher in Athens. Born probably in the year 470 B.C., the son of Sophroniscus, a stonecutter, and Phaenarete, a midwife, Socrates was educated (*Crito* 50 D) after the manner of the children of the time, and he may have commenced the work of life by learning his father's trade. Prior, however, to the year 424 (when *The Clouds* appeared) he had adopted the occupation by which he has become familiar to later ages; and, as he made no money by the pursuit of philosophy, the likelihood is that he had inherited a small competence. He was constantly to be found in the scenes of public resort in Athens, ready to converse with friends or strangers, with a view to the exposure of apparent knowledge as a preparation for the acquirement of truth and virtue. He did not take any large part in political affairs. But he served as a hoplite at Potidaea (432–429), at Delium (424), and at Amphipolis (422); and, on two occasions, he distinguished himself in Athens by uprightness and courage in statesmanship. Despite his frugal habits of life, he was married and had three sons; the name of his wife, Xanthippe, has become proverbial. As a personality, Socrates was undoubtedly unique and attractive. Outwardly, however, he was far from handsome; he was odd, too, in other ways. He arrogated to himself, for example, a certain divine guidance. Endless ingenuity has been expended in trying to interpret what he called his *δαίμωνιον*, or divine sign. In truth, all the expressions used in regard to it are compatible with a simple psychological explanation. With Socrates, as with many other men of enthusiastic and impassioned intellect, the quick, rapidly-formed judgments as to courses of action took so little the shape of elaborate or reasoned-out thought, that they appeared to come as inspirations, as from without. The accusation and condemnation of Socrates were probably due in the main to a tendency, on the conservative side, to visit upon him

a dislike of the character of the new intellectual movement. He was put to death in prison in 399 B.C.

**His Teaching.** Socrates himself committed nothing to writing; we are dependent upon others for an account of his teaching. Since the time of Brucker (1741), it has been usual to rely mainly upon the representation of his doctrine in the *Memorabilia* and to regard the Platonic Socrates as more or less an artistic creation. There have been, however, many protests against this view, and quite recently a very radical revision of it has been put forward by A. E. Taylor (*Varia Socratica*) and J. Burnet (edition of *Phaedo* and *Greek Philosophy*, Part I). Taylor and Burnet maintain that the Socrates who speaks not only in Plato's earlier dialogues, but also in the *Phaedo*, is the historic Socrates; that Plato's portrait is supported in a host of little ways by the caricature of *The Clouds*; and that there is no excuse for preferring the commonplaces of Xenophon. According to their interpretation, the theory of Ideas owes its origin not to Plato, but to the Pythagoreans; Socrates himself belonged to a Pythagorean fraternity, and he accepted and developed the theory he found current among them. While, however, there is a strong case for attaching more historic value than has been customary to the Platonic Socrates, it is extremely doubtful whether the metaphysical theory of Ideas was adopted by Socrates. Aristotle, at all events, appears to assert the very opposite (*Met.*, M. 1078, b. 30).

To Socrates, Aristotle (*Met.*, 1078, b. 23) explicitly assigns the credit of having been the first to employ the two logical processes of induction (*ἐπακτινικοί λόγοι*) and definition (*τὸ ὁρίζεσθαι καθόλου*). By induction, Aristotle can scarcely mean anything else than the procedure exemplified both in the *Memorabilia* and in the Platonic dialogues, where Socrates is to be found advancing to a definite account of some virtue or of virtue generally by examining the cases which either careful inspection or popular usage would allow to belong to the class under discussion. Or else we find him accepting, for the moment, a current definition and testing it by bringing to bear instances which show the limitations or corrections of which it stood in need. For example, if the several instances of courage or of temperance be scrutinized, if what is special to each be omitted, and if due corrections or limitations be introduced, the resulting notion or concept will necessarily correspond to the real nature of courage or temperance. This, which is, roughly speaking, the Socratic method, involves positively the philosophical principle that in *notions* or *concepts* is to be found for human thinking the truth of things; and, negatively, the principle that in isolated sense-perceptions there is to be discerned the source of error or illusion. All induction had as its aim to determine the general, the essential, nature of that which was to be defined. And this characteristic was obviously reached in the general notion as contrasted with the chance views or varying appearances of an object in sense-perception.

**The Socratic Method.** It was the thought of such an ideal of human knowledge which gave point to the confession, constantly on the lips of Socrates, of his own ignorance, and which explains the meaning of his maxim that self-knowledge is a condition of attaining truth. To awaken consciousness of one's own ignorance was the aim of that cross-examination, or *ἑλεγχος*, which was the external

form of the dialectical method. Starting with some proposition, apparently remote from the subject in hand, to which the respondent was induced to yield a ready assent, Socrates would proceed to draw from it an evident but unexpected consequence which was clearly inconsistent with the dogma that had been laid down. His interlocutor was thus reduced to passing judgment upon himself and was brought to a state of doubt or perplexity (*ἀπορία*). Such a conviction of ignorance was, however, useful only as a preliminary. Further application of the method was designed to drag forward, from the implicit condition, thoughts which could then be tested and purified, and thereby become entitled to rank as principles. The method implied that the cross-examiner had already in his mind not indeed the solution of the problem that was being discussed, but an idea of what was necessary to constitute a solution. So that the Socratic method prepared the way for the view that true knowledge is but the explicit expression of what is really implicit in human thought itself.

**His Moral Teaching.** The substance of the moral teaching of Socrates may be summed up fairly enough in the dictum, virtue is knowledge. No man can act well who does not know the good. From which followed the more paradoxical consequence, no one does wrong voluntarily. All vice is ignorance, or failure to represent the good, which, were it represented, would necessarily determine a rational being's course of action. The knowledge which is essentially virtue was knowledge of the good. But to the question as to the nature of the good, Socrates apparently was able to return no definite answer. At times, he appears to have identified the good with the useful, while other lines of reflexion induced him to emphasize self-control or temperance as not only the highest but the sole form of virtue.

G. D. H.

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**SOFIA, THE UNIVERSITY OF.**—(See BULGARIA, THE EDUCATIONAL SYSTEM OF.)

**SOL-FA SYSTEM, THE.**—(See TONIC SOL-FA SYSTEM, THE.)

**SOLICITORS, THE EDUCATION OF.**—The profession of a solicitor is an amalgam of at least four previously distinct callings. The oldest, that of "attorney," was, at first, probably, non-professional; the words "attorney" and "agent" being almost equivalent. But the term became specially appropriated to those agents who represented their principals in litigious proceedings; and the natural desire of the royal justices, at the close of the thirteenth century, to control the activities of such persons, converted them into officials of the Court. Perhaps the earliest recognition of attorneys as a learned body comes from 1402, by a statute of which year the judges were required to examine candidates for the position. Shortly afterwards, the growth of the new equitable jurisdiction of the Court of Chancery produced a kindred body of practitioners known as "solicitors," who, however,

were not technically agents of the clients whose causes they "solicited," because the Court of Chancery considered itself the guardian of the interests of all its suitors. Again, the gradual substitution of written for oral dealings in land, which took place in the sixteenth and seventeenth centuries, produced a body of "scriveners," who, beginning as mere writers of court or legal hand, gradually developed into advisers in dealings with land, and, at any rate in London, succeeded in maintaining a monopoly of such business until the eighteenth century. Finally, the abolition of the independent jurisdiction of the ecclesiastical courts in probate and matrimonial matters, which took place in 1857, caused the disappearance as a separate profession of the "proctors" who acted as the representatives of the suitors in such matters, and transferred their functions to attorneys and solicitors, who had become practically identical by virtue of a statute of the year 1729, and who, on the amalgamation of the royal courts of superior jurisdiction by the Judicature Act of 1873, became officially known as "Solicitors of the Supreme Court."

**Organization on the Guild System.** Like almost all skilled callings in the Middle Ages, most of the various bodies of legal practitioners organized themselves on the guild system. Owing, however, to their intimate connection with the courts, attorneys, solicitors, and proctors never succeeded in acquiring complete self-government. They seem to have escaped the great Apprenticeship Statute of Elizabeth (1562); but the statute of 1729, which, as mentioned, virtually amalgamated attorneys and solicitors, required that each of them, before admission to practice, should have served under a written contract of clerkship to a practitioner in the same branch for at least five years. This requirement has persisted, as a general rule, to the present day; but graduates in arts or laws of the universities of the United Kingdom, and barristers, as well as advocates, Writers to the Signet, solicitors, and procurators in Scotland, are exempt from two of the normal five years, and persons who have passed certain examinations are exempt from one year's service.

Attorneys and solicitors appear, until the end of the sixteenth century, to have been members, in some capacity, of the Inns of Court (*q.v.*), and to have attended the "readings," and, perhaps, taken part in the "moots" or debates which then formed so important a part of both academic and professional education. In the seventeenth century, they seem to have been relegated to the minor foundations known as Inns of Chancery (*q.v.*); and it was, perhaps, owing to a desire to escape from this somewhat invidious position, that the members of what had by that time become a powerful and independent profession resolved to form themselves into a self-governing body. This first took the form of a purely voluntary society known as "The Society of Gentlemen Practisers in the Courts of Law and Equity," which was founded in 1739. This body appears to have lasted until 1831, when it was absorbed into a chartered society which is now the Law Society, entrusted with the registration, education, examination, and, to a large extent, discipline and control of solicitors, as well as the protection of their professional interests and the encouragement of social intercourse amongst them. The proctors, who seem never to have had a guild of their own, though they were subject to certain

apprenticeship regulations, joined the attorneys and solicitors in the formation of the Society of 1739; but the scriveners remained outside, and entered into a bitter contest with their rivals, which ended, in 1760, in their complete defeat, and their extinction as a separate and exclusive profession.

**The Law Society.** The Society of 1739 seems to have been concerned more with professional and social, than with educational matters. But the first of the Law Society's charters, that of 1831, places in the forefront of the Society's duties that of "facilitating the acquisition of legal knowledge"; and, shortly after its foundation, the chartered Society began to make provision for regular instruction, which it vigorously supplemented by obtaining from the judicial authorities, in whom the power of admission to the profession was still vested, an undertaking to convert their formal and somewhat perfunctory testing of qualifications into a systematic examination. This important change took place in the year 1836-1837.

For some years after its establishment, the actual conduct of the examination system remained, at least partly, in the hands of the judicial authorities; although, from the very first, selected members of the Council of the Law Society were charged with a share in its superintendence. In the year 1877, however, the Society, by the Solicitors' Act of that year, obtained complete control over the examination system, subject to an appeal in any individual case to the Master of the Rolls, who, by virtue of the Judicature Act of 1873, had become the judicial authority specially charged with the control of admission to the solicitors' branch of the legal profession. Meanwhile, the single testing examination set up in 1836-1837 had become the "Final" Examination, having been supplemented, in the year 1860, by a Preliminary Examination in general knowledge imposed as a condition precedent to entry upon service under articles of clerkship, and an Intermediate Examination held during the course of service to test the progress of the articulated clerk in his legal studies. Thus the intending solicitor found himself faced by a formidable triple barrier, through which he had, subject to certain exemptions, to make his way. Further, if he desired to distinguish himself at an early stage of his career, he was, in 1880, provided with the opportunity of entering for a voluntary Honours Examination, upon the result of which several valuable pecuniary prizes, as well as honorary distinctions, are awarded.

**Educational Activity of the Law Society.** It was, perhaps, natural that the introduction and organization of this comprehensive examination system, which involved great care and labour, both in its arrangement and its administration, should have reacted somewhat unfavourably upon the educational activities of the Law Society. At any rate, although courses of lectures of a high character, many of them by men who afterwards became eminent in various spheres, continued to be delivered at the Law Society's Hall, it was found that, mainly owing to a want of continuity and comprehensiveness, they were not successful in providing a complete educational system. In the year 1893, they were, accordingly, replaced by a tutorial system of a less ambitious kind, which continued, with varying fortunes, for a period of ten years. In 1903, this system was again replaced by a more comprehensive and highly organized system, the chief novelty of which was the appointment of an administrative head who, in addition to taking a

considerable share in the teaching work, is concerned with organizing, under the supervision of the Council and a specially appointed Legal Education Committee, all opportunities for extension of the system which present themselves; with conducting the correspondence involved in a system dealing directly with two or three hundred students and, indirectly, with three or four hundred more; and, generally, with keeping the Council's educational machinery in working order.

The chief difficulty of the Council's educational task lies, undoubtedly, in the fact that a large number of its potential students serve their apprenticeship (or "articles") in towns which are remote from centres of legal education, and that it is, consequently, difficult for them to avail themselves fully of the facilities provided by the Council in London, or by other bodies, such as local law societies and the modern universities, which have established centres of legal education in densely-populated areas. It is this difficulty, doubtless, which is the chief cause of what, from the standpoint of education, is unquestionably the chief blot on the present system, viz., the want of co-ordination between the teaching and the examination systems of the Society. Inasmuch as the qualifying examinations are compulsory, to a greater or less degree, on all candidates for entrance to the profession, while attendance on teaching is not, the course of the intending solicitor's studies is, in the majority of cases, inevitably determined rather by the examinations than by educational considerations. And, inasmuch as the Examination Committee prescribes no curriculum, but only subject-matter of examination, the attention of the student, especially of the student who has no access to official educational assistance, is fixed rather on the probabilities of the examination paper than on the principles of his subject.

**Modern Developments.** Obviously, the remedy for this difficulty is to increase the effective area of educational influence; and in this direction the efforts of the Council of the Law Society have in recent years made substantial progress. Not only has the Council expended great care in perfecting and elaborating its own educational system, especially by developing a system of correspondence tuition for articulated clerks resident beyond the area of oral facilities, but it has striven, so far as its resources will permit, to assist the efforts of the responsible local authorities above referred to, who are maintaining organizations for legal education in populous centres. Thus, the Universities of Manchester, Liverpool, Leeds, Wales, and Sheffield, working in conjunction with the local professional authorities, have established schools of law which are mainly attended by intending solicitors, and which combine academic with professional studies. Other less developed organizations of a similar kind are, in normal times, maintained at Birmingham, Bristol, and Nottingham; and all these receive, or have received, assistance from the Council of the Law Society.

Finally, a new development which, though at present in its infancy, may ultimately go a long way towards solving a very difficult problem, was initiated in the year 1913. In that year, taking advantage of the terms of a section of the Solicitors' Act, 1877, the Council of the Law Society obtained from the Master of the Rolls an Order exempting from one year's service under articles any intending solicitor who has, previously to entering into articles,

passed a certain examination established by the Society for the purpose. Though at first sight, apparently, only adding another to the list of exemptions alluded to in an earlier part of this article, this Order really initiated a new policy; for, when its terms are examined, it is found that the examination in question is an examination on a curriculum of legal studies provided by the Law Society, and cannot be even attempted until the curriculum has been proportionately pursued. Moreover, the examination is not a supreme effort at the end of the curriculum, but a continuous process which takes place during its various stages. Obviously, therefore, the Order of 1913 is not only a more direct recognition of the value of legal teaching than anything which has gone before, but is an educational experiment of a new and interesting kind. Inasmuch as already three of the modern Universities (Liverpool, Leeds, and Sheffield) have applied for and obtained somewhat similar Orders, applicable to their own degree curricula, it may well be that the new movement will have far-reaching results. Amongst its other benefits, it has the obvious advantage of enabling a young man who contemplates entering the legal profession to estimate, by the experience of a year's study of legal principles, his aptitude for the work of the profession, before committing himself to the heavy expenditure of time and money involved in service under articles of clerkship. E. JENKS.

**SOMERVILLE COLLEGE, OXFORD.**—This was founded (1879) for the reception of women students desirous of higher education. Walton Manor was secured by the committee, its freehold acquired (1880), and the Society incorporated as a College (1881), named in honour of Mary Somerville, the mathematician. Till 1894, the foundation was known as Somerville Hall; in that year it assumed the title of its incorporation. The house was enlarged (1882), additional buildings begun (1887), a gymnasium presented (1890), the original house reconstructed (1895), additional land acquired (1896), cottage rooms built (1898), a library and other rooms opened (1904). In 1913, the "Maitland Hall," with senior common, council, tutors' and students' rooms, and new kitchens were opened by the Vice-Chancellor of the University.

The first principal was Miss Madeleine Shaw-Lefevre (1879–1889, member of council to her death, 1914), to the enduring character of whose work the College is deeply indebted. She was succeeded (1889 to her death, 1906) by Miss Agnes Maitland, a lady of remarkable administrative ability combined with great tact and sympathy. From 1906 the position has been held by Miss Emily Penrose, M.A., O.B.E., J.P., a distinguished Somervillian (1889–1892), who obtained a First Class in the Final Classical School, Oxford (1892); was Principal of Bedford College, London (1893–1898), and of the Royal Holloway College, Egham (1898–1906).

Early students were expected to pass an Oxford Local Examination for women over 18, and to read for special women's Final Examinations. In 1884 a statute was carried in Convocation admitting women to Honours Moderations, and to the Final Honours Examinations of the University in history, mathematics, and natural science.

The Final Classical School (*Litterae Humaniores*) was opened to women in 1888. Till 1904, women students of English and of modern languages had



to take a Delegates' Examination, as there were no University Honours Examinations in such subjects. In 1894, the University Pass and some remaining Honours Examinations were thrown open. Since 1896, Somerville students are expected to have passed Responsions, or some exempting examination, before coming into residence. All candidates are required to pass a College Entrance Examination. Scholarships and exhibitions are competed for annually. Lectures and tuition are provided by the College, students of which are admitted to courses of study provided by the University and the men's Colleges. Lectures given by tutors of Somerville are open to men undergraduates. Somerville students are required to matriculate and to wear academic dress and are expected to read for the Honours Degree Examinations of the University. All degrees, except those of B.D. and D.D. are open to women. Women graduates of Oxford who wish to remain members of the University are required to pay, through their college, the University due of 6s. 8d. per term. Resident women Masters of Arts, who thus keep their names on the books, vote in Congregation and in Convocation. Non-resident women Masters of Arts, who have paid such dues, vote in Convocation. The Parliamentary vote of the University is granted to properly qualified women.

**General Information.** Somerville College is directed by a council with a President, Treasurer, and hon. Secretary. The Principal is *ex-officio* a member; the tutorial staff is represented. The resident College staff consists of the Principal, Vice-Principal, the tutors, a librarian, and a bursar. There are about 127 resident students.

By invitation of council, members of the College attend an occasional "gaudy," with a dinner and garden party in College.

Old students maintain their corporate interests by membership of the Somerville Students' Association, founded 1888. Members of Council and of the Senior Common Room are honorary members of this Association, which elects an Oxford correspondent, holds meetings, and publishes a report.

The College library has received such gifts as the Pattison books, 1884; the John Stuart Mill books, 1906; the Edwards Library, 1907; the Bousfield bequest, 1911.

One Research Fellowship is subscribed by College members; another was endowed, 1912, by Rosalind, Lady Carlisle.

A travelling scholarship, bequeathed by Miss Ewart (1911), was used (1911-1912) by Miss Freire-Marecco for anthropological research in New Mexico; and in 1914-1915, by Miss Czaplicka, for similar study in Northern Siberia. Subsequent scholars have studied in France and Iceland respectively. The scholar appointed in 1920, Miss Wakefield, plant-pathologist of Kew, proposes to work in the West Indies on certain diseases of tropical plants.

Somervillians have been appointed to many important posts, such as the headship of Somerville College; Bedford College, London (twice); the Royal Holloway College; King's College, London; Women's Department (twice); Aberdare Hall, University of Wales (thrice); Royal Victoria College; McGill University, Canada (twice); Queen Margaret Hall, Glasgow; College Hall, London; and the Women's Halls in the Universities of Manchester and Birmingham. Many are engaged in teaching; others work on borough and county councils, in

Government offices, and in University settlements. One, as legal advisor to the Court of Wards, Bengal, received the Kaisar-i-Hind Gold Medal (First Class) for public service.

Tennis, hockey, boating, gymnastic and other clubs are organized in College with debating, literary, and scientific societies.

The College is undenominational, care being taken to put members of all religious denominations on an equal footing. Prayers are read daily.

Inclusive charges for board, tuition, and lectures are about £120 per annum. University dues and examination fees are extra. Application for admission must be made to the Principal.

From Easter, 1915, the College premises were taken over by the War Office for hospital purposes, the Principal, staff, and students being housed in St. Mary Hall (Oriol College) and in other approved dwellings.

Residence in College was resumed in October, 1919.  
M. M. E.

**SONG SCHOOLS.**—Mr. Leach claims that the first English song school was established at Canterbury as part of the cathedral organization. He mentions (*c. A.D. 635*) the establishment of a song school at York by James, the deacon. He insists that grammar schools and song schools have always existed, in England, in common with the cathedrals and great churches—"i.e. in all the great centres of population"—from the time of Augustine and Ethelbert to that of Cranmer and Edward VI, distinct in their work, and "generally in their government"; the grammar school providing for higher work, and the song school for elementary work, and preparing the boys to assist in the musical services of the church. Mr. Leach mentions grammar schoolmasters receiving as much as £16 or £20 before the Dissolution of Chantries (1546-1548), though the average of all schoolmasters is about £6 9s. 6d. The ordinary song schoolmaster's salary he puts at £5. Sometimes, in small places, a schoolmaster had to teach both "grammar" and "song" boys in the same school (*Leach's English Schools*, p. 95).

The song school was particularly a mediaeval institution. But the song school as an important national institution ceased with the dissolution of so many schools by the Chantries Acts, 1546-1548. Of the last of the song schools, we have particulars from its foundation to its end in 1905. This was the Newark-on-Trent Song School, founded, in 1532, by Archdeacon Thomas Magnus, along with a grammar school in the same town. From 1532 to 1905 there was in existence this old Pro-Reformation Grammar School, and the independent song school, side by side. Magnus's indenture of 1532 described the qualifications of the grammar schoolmaster and the song schoolmaster respectively. They are both to be "secular honest priests, whereof the one priest shall have sufficient conyng and lerning to teach grammar, and the other to teach plain-song, prick-song, descant, and to play at the organ; and the said two priests freely shall teach and instruct all persons and children that shall be disposed to learn grammar, prick-song, plain-song or descant; that is to say, the one of the same priests to teach grammar and the other plain-song, prick-song and descant." Both masters were required to attend regularly Church services on Sundays, Festival days, and Holy days, and help in the celebration of "solempne divine service"

at Evensong, Matins, Mass, and Processions. Six children were to be chosen for the song school, and to assist in the services six days a week. In addition to free education, they received £1 6s. 8d. towards their maintenance and clothing. The song master, afterwards called the organist, was to have the ordering of the children in "good and virtuous manners," as well as learning. The Newark Song School, in 1905, by scheme, was absorbed in the grammar school. F. W.

#### References—

LEACH, A. F. *English Schools at the Reformation*. (London, 1896.) *The Schools of Mediaeval England*. (London, 1915.)

**SOPHISTS** (*σοφισταί*, men of wisdom or culture) was the title given by the Greeks, about the middle of the fifth century B.C., to certain itinerant teachers who made it their business to train their pupils for the duties of civic life. Particularly in Athens, and owing to the change in social conditions, the need was being felt at this time for a far more extended system of education than had previously been thought necessary. Young men were eager for instruction in the principles of dialectic and science; in literature and philosophical criticism; and, above all, in the art of rhetoric and effective public speaking. The appearance of the class of men called "sophists" was due primarily to that demand. They were educators rather than philosophers, and their lecture-rooms were the precursors of the great schools of culture known as the Academy and the Lyceum. Protagoras of Abdera (about 480–411) and Gorgias of Leontini (483–376) were the most distinguished leaders of the movement. The former was the author of a work on *Truth*, from which has come down to us the familiar maxim: "Man is the measure of all things"—that is to say, as Plato more than once interprets it, things are to me as they appear to me, and to you as they appear to you. The latter took up a more sceptical attitude still and, in his book *On Nature, or The Non-existent*, maintained (a) that nothing exists; (b) that, if anything did exist, we could have no knowledge of it; and (c) that, even if we could have knowledge of it, we could not communicate our knowledge to anyone else. Other prominent sophists were Hippias of Elis, who sought to popularize literature and art; and Prodicus of Ceos, a superficial moralizer. Sophistry, as a profession, persisted for nearly a hundred years. The use of one name tends, however, to obscure the important difference between the earlier and the later sophists—a difference which is sufficiently recognized in the Platonic dialogues. Both Protagoras and Gorgias are treated by Plato with respect; the principal criticism he passes upon them is that they did not realize the implication of the ideas they were imparting in their teaching. The type of sophists whom Plato describes as "paid hunters after wealth and youth," as "merchants in the goods of the soul," and whom Aristotle refers to as "men who employ what they know to be fallacy for the purpose of deceit and of getting money," belonged to another generation; and of them, Thrasymachus, in the *Republic*, may well be a faithful portraiture. The "eristic" prevalent in Plato's time was a contemptible business enough. Yet, even in its decline, and notwithstanding the disregard for truth that came more and more to infect it, sophistry had its educational uses. Grote, in a well-known chapter of his *History*, contends

with justice that the sophists were no one sect, and that they did not form a school. On the other hand, however, Grote is wrong in refusing to recognize in the sophistic movement, as a whole, any community of principle entitling it to be regarded as a definite phase of Greek thinking. While there is no one body of philosophic doctrine which can be called sophistic philosophy, the cardinal principle of sophistic teaching can without difficulty be disentangled, support for which was sought from various quarters and in various ways. Expressed in modern language, that principle might be called the principle of subjectivity or of relativity. The individual, as such, was viewed by the sophists as the ultimate standard of truth theoretically, and of right conduct practically. It was an easy transition from this general principle to such special doctrines as the essentially fluctuating character of human knowledge and the essentially self-interested character of human motives. So, too, in strict conformity therewith, was the celebrated antithesis between nature (*φύσις*) and law or convention (*νόμος*)—an antithesis which, while at first signifying the contrast between what was relatively universal and what was transitory, came to mean a contrast between the imperativeness of our animal needs and the non-imperativeness of what was imposed by social propriety and custom. G. D. H.

**SOUL, THE.**—The soul of a living creature is its whole spiritual nature in so far as it exhibits unity and individuality. When the individuality or unity of the spiritual nature is not intended, but some universal or particular aspect of it, we do better to use such terms as mind, spirit, intellect, reason, instinct, life—all of which connote reality of a spiritual nature. It is from individuality that all the problems regarding the nature of the soul arise. This meaning also admits a very wide extension of the term. We may speak of the soul of a man and the soul of a brute; and also, on the plane of spiritual existence below the human, we may use the term to indicate the spiritual nature of any creature, however lowly its organization, even including the plant, in so far as it manifests individuality; while on the higher plane we may speak of the soul of a nation or of a race. In every case we denote not only a spiritual nature, but its individuality as distinct from its generality or universality.

**The Relation of Soul to Body and Mind.** There are two Greek words for the soul: *ψυχή*, whence is derived psychology, the science which treats of the soul; and *πνεῦμα*, the Latin *Spiritus*, which identifies it with the breath. The Latin word for the soul is *anima*, whence is derived the word "animism" (*q.v.*) for the doctrine that there is a soul life independent of the body life. The well-known doctrine of Descartes of the "animal spirits" was an attempt to explain the bodily movements as the activities of the *anima*. The two Greek words, *ψυχή* and *πνεῦμα*, differ in their application, the former being much wider, almost synonymous with life; the latter being confined at least to creatures who breathe. Hence it has been sometimes held that man's nature is dual, consisting of soul and body; sometimes that it is tripartite—body, soul, and spirit—spirit standing for the rational as distinct from the sensitive nature.

The phrase "psychology without a soul" is sometimes used to describe the science of mind which rejects "animism" in every form. Such is the theory now generally known as Behaviourism,



according to which the soul is a complex development of various "tropisms" and "taxis"—some physical, some chemical in their ultimate nature.

Panpsychism is the theory which affirms the only real existence to be that of the soul, the whole of material nature including the body being a mode or modes of its manifestation. The term was first applied to the philosophy of Fechner.

The biological concept of the individuality of the organism is named "entelechy." This term has come into general use in recent times in connection with the theory called "neo-vitalism." One of the chief exponents of this theory, Professor Hans Driesch of Heidelberg, describes the organism as a harmonious equipotential system, whose functional disposition is controlled and regulated by the individualistic principle "entelechy," which governs the distribution of the activities of the parts, and subordinates them to the well-being of the whole.

Some form of this doctrine is generally adopted as a fundamental physiological basis by those who hold "the soul-theory." This is the theory that there is a psychic being or soul, independent of the body, and therefore conceivably capable of surviving the disintegration of the organism at death, but which is manifested during life in the mind and its development. Mr. William McDougall, who has expounded this theory in his *Mind and Body*, describes the soul as "a being that possesses, or is, the sum of definite capacities for psychical activity and psycho-physical interaction" (p. 365).

The difficulty of the soul-theory is to reconcile it with our knowledge of the embryology of the organism. The new individual is generated by the fusion of two reproductive cells from the bodies of the two parent organisms; and the mind of the new individual, like the body, seems directly related to its ancestors. How, then, is the independent soul generated, or, if it be not generated, whence does it arise and when does it enter the new individual? A process by which the two souls of the parents should unite to produce a new soul on the analogy of the organism seems inconceivable. There is, also, a further difficulty in the determination of individuality. In the organism, each cell leads an individual existence at the same time that it is taking its place in the corporate life.

The interest of most people in the soul-theory is not, however, in the metaphysical or in the biological question, but rather in the practical question whether or not there is any evidence to prove the survival of individual personality after death. Many and various appearances, supported by personal testimony, have been alleged as evidence that such survival is fact. The Society for Psychical Research exists for the critical analysis of these phenomena. Spiritism (not spiritualism) is the theory that there is direct agency by souls which have survived their connection with the body.

H. W. C.

**SOUTH AFRICA, TEACHERS IN.**—The Union of South Africa has in recent years been developing a system for securing satisfactorily qualified teachers. At the present time, the Union compares favourably with England in regard to the qualifications of candidates for entrance to the various grades of the teaching profession; in regard to the length of the training course; and in regard to impressing upon the teachers, whom the State

has trained, their obligation to serve for a period of two years in State schools.

Each State in the Union has its own scheme for obtaining and training teachers of any grade below the highest. The teachers' first-class certificate for the Union supersedes the first-class certificates which were formerly issued by the individual States. It qualifies the holder to teach in secondary schools, and corresponds to the university diplomas issued in England. The certificate is granted provisionally until the holder has taught successfully in an approved school for three years, and has also submitted a satisfactory thesis on an educational subject.

The equivalent of almost every grade of English teacher may be found in South Africa. The pupil-teacher is gradually becoming a student teacher. Local authorities (school boards) appoint large numbers of teachers called "uncertificated," who correspond to our supplementary teachers (*q.v.*). The Provincial Departments of Education regret these appointments, and, like the English Board of Education, look forward to a time when the supply of qualified teachers will be great enough to justify the abolition of the unqualified. The holder of the "third-class certificate" in South Africa is equivalent to an English uncertificated teacher, and there is probably a fairly close equivalence between the South African second-class certificate and the English certificate.

One important fact about European teachers in South Africa is that they will be expected to speak Dutch as well as English. Both languages have, since 1912, been included in the curriculum of training colleges in Cape Colony.

Schools for natives are sometimes staffed by missionaries and sometimes by members of the same race as the pupils. Natal also has schools for Indian children, and issues Indian teachers' junior and senior certificates.

Natal has granted certificates to qualified native teachers since 1887. From that date until 1912, three grades of certificate were awarded, but the examination was on purely academic lines, and not of professional qualifications. Since 1912, every native student teacher has been required to undergo a period of professional training in a training college. Three grades of certificate are still awarded: the third or lowest after one year's training; the second after two years; the first after a three years' course, followed by successful teaching for two years.

The proportion of women teachers in South Africa is higher than in England. Special certificates for kindergarten teaching, teaching of domestic subjects, woodwork, drawing, and needlework, can be obtained, and the Provincial Governments provide vacation courses in these subjects and in music.

The conditions of service in South Africa are very much as in England. The Provincial Governments, however, earmark certain portions of the grant as aids to teachers' salaries. Even with such assistance, the salaries and financial prospects in South Africa are, especially when compared with the cost of living, little, if any, better than those in England.

A. C. C.

**SOUTH AFRICA, THE EDUCATIONAL SYSTEM OF.**—There is no established definition of South Africa. Even British South Africa is a term of wandering meaning. At present, the one fixed unit is the Union of South Africa, which is

defined by law, and includes the old colonies of the Cape and Natal, and the former republics of the Transvaal and Free State. In it there is some unity and much multiplicity. The educational systems have followed the political systems, which they reflect and record. Education in South Africa bore, at first, the stamp of the Dutch of Holland. The English conquest of 1806 substituted the British stamp, and this was confirmed by the war of 1899-1902. There are now three educational systems in South Africa, all British, but differing according to date and circumstance. In the Cape we have the British system of the period of the board schools, before the Act of 1902 (*q.v.*). In Natal we have more of the public school influence. In the newer colonies we have the British State system as reformed. South Africa has not yet tried a stamp of her own, and the student of South African institutions will find the key to most of his perplexities by observing the corresponding and contemporaneous British institution. There is, to be sure, a Union Education Department, but its scope is confined, and as yet it can hardly be said to have made itself felt.

**The Cape.** The history of education at the Cape in the days of the Dutch Government, and up to the time of the present system, is to be found in the Appendices to the Report of Judge Watermeyer's Commission, the first of the four Commissions which have investigated Cape education; in the Report itself; and in the fifth volume of the special reports of the English Board of Education. As soon as the colony was established, a school for white children was started by the Government and, as early as 1677, a school for coloured children. The ordinance of the Governor de Chavonnes in 1714 made careful provision for the school at Cape Town, but not for country schools. It aimed chiefly at the inculcation of approved religious opinions. In the country, education was left to discharged servants of the East India Company, soldiers and sailors, themselves of the most modest educational attainments; and in Cape Town itself the condition of affairs at the end of the century was such that a serious reform movement started in 1791. A public subscription was raised and a Latin school established. Further reforms were delayed by the British occupation of 1795. A remarkable scheme was put forward by De Mist, the Commissioner of the Batavian Republic in 1804. He was a most able man, and his proposals, in education and other spheres, were well calculated to meet the needs of the colony. He recognized the necessity of establishing a training college, of confining Civil Service appointments to educated people, of improving girls' education, of extending education beyond the limits of Cape Town, and of establishing a system of taxation for the support of the schools. But before his scheme could be brought into force, the war recommenced, and all thoughts of educational reform were lost and for some years there was a feeling of uncertainty. Except for the establishment of a good girls' school, none of De Mist's proposals were carried out—an incalculable calamity. In 1812 a plan was made for creating schools in connection with the churches, and next year another public subscription was opened and free schools established in Cape Town. A Bible and School Commission came into existence and supervised the schools. In 1822, Lord Charles Somerset decreed that there should be English schools, and some of these were established and flourished, according as

they departed from the Governor's instructions and used the language of the children rather than his. Free schools were about the same time established in country places by the Commission; but little progress was made till 1841, when a scheme, originating with the Secretary to the Government (Colonel Bell) and revised by Sir John Herschel, was, with some modifications, introduced. A Superintendent-General had been appointed in 1839. There was to be an organized supply of Government schools, a normal school, a scale of teachers' salaries, a system of school libraries, and a plan for granting aid to schools established by the people. This last system outgrew the rest, and formed the base of the system recommended by the Watermeyer Commission of 1861, which was adopted and existed in the Cape till 1905, when it was superseded by the school board system now obtaining. These levy a small rate, and fees are charged as a rule; but the final financial responsibility rests on the State, that is, for education, the Provincial Council.

THE WATERMEYER COMMISSION sat when the English educational world was newly stirred by the report of the Commission of the Duke of Newcastle. It established the rigorous system of individual examination by inspectors, which has now been abandoned everywhere except in the Cape and condemned everywhere without exception. Unhappily for South Africa, having copied the English reforms of the sixties, it has clung to the belief that they are the last word, and has not followed the reforms of the nineties.

The condition of affairs at the time of Union, in 1910, was reported on by the FOURTH CAPE COMMISSION, of which the present writer was chairman. It found general agreement except on the language question; but the causes of the prevailing discontent have not yet been removed. The schools are bound down by a set curriculum, and inspection consists in the examination and classification of the individual children by inspectors. In the higher standards, this is to some extent relaxed; but the tyranny of inspection is replaced by the equal, though more enlightened, tyranny of the examinations, which have been established by the University and the Education Department. The curriculum forced on the schools is old-fashioned and formal, and the treatment of language and history in particular leaves much to be desired. Fortunately a serious effort at reform has been inaugurated by the new Superintendent-General of Education, Dr. Viljoen.

Much has been done, however, to bring education within the reach of the people, especially in the towns, and there is tolerable provision for poor children of promise who can reach the schools to continue their education. But education in the purely country schools is deplorable, and no efforts have been made to concentrate. Indeed, the promising system of district boarding schools, especially commended by Lord De Villiers's Commission in 1879, has been destroyed. In the towns, little has been done for technical or industrial education, and nothing for continuation education. A beginning has been made by the Dutch Reformed Church with the work of education for defectives and, since union, the provincial authorities have begun to stir in this matter.

Teachers are now to be paid in accordance with their personal qualities rather than the type of school in which they teach. Considerable

efforts have been made to improve the training of teachers, and recently the establishment of training colleges in place of the incidental training of pupil-teachers in schools has won the approval of the authorities. The earlier attempts of the State to found Normal Schools all proved abortive, and nothing was effected till the establishment of the Cape Town Normal College by the Dutch Reformed Church in 1878. All children are compelled to go to school if they are of European parentage and have not passed the fourth standard or their fifteenth year. The boards have recently been authorized to raise the standard of compulsion, though the department, without being generally supported, believes this to be impracticable. A beginning has recently been made with the medical inspection of schools.

Of the two great matters of controversy—language and religion—the former has been decisively dealt with by the Union Parliament; as to religion, the Cape has been singularly free from controversy. Up to 1865 there was Bible teaching in all the schools. Then, owing, no doubt, to English controversies, the mission schools, supported by the State, were allowed to impart denominational instruction; while the public schools were left to do as the managers chose, but not to give any religious instruction during school hours. However, twenty years later the restriction was withdrawn; in 1905 it was provided that the public schools should be opened with the reading of the Lord's Prayer and a portion of the Bible; and in 1913 it was enacted that, subject to the usual conscience clause, not only should there be organized Biblical instruction, but also instruction in a Catechism agreed on by the Protestant churches, the latter without note or comment. This was generally approved in view of the consent of all the Protestant churches.

**Natal.** In the Cape, the system of State-aided schools has entirely superseded the various systems of State schools which have been attempted. It has also crushed out the competition of all but the chief of the private schools, which a generation ago were an important factor in the educational life of the colony. In both respects, Natal has deliberately chosen a different course. Beginning, after the short period of the republic founded by Boer *voortrekkers*, as an annex of the Cape, Natal felt the influence of Sir John Herschel, and the Government established its own schools while extending aid to those established by the people in country districts. This has continued to the present day. In 1877 a Council of Education was established to regulate the Government schools and the grants to aided schools. In 1894, on the grant of self-government, the council was abolished and a Minister appointed. At the present time, a good deal of the work of secondary education is done in Natal by aided schools, which do not, like the Cape schools, spring from the efforts of local committees or bodies, but correspond more to the public schools of England. Something like a third of the total number of children in schools directly or indirectly supported by the State are in aided as opposed to Government schools. The curriculum leaves scope to the teacher. The pupil-teacher system has lingered on, but vigorous efforts have been made to provide better training. Simple religious instruction in the Bible obtains in all the schools, subject to the conscience clause. School fees are charged, but on a very modest scale.

Compulsion extends to Standard V. On the whole, there is more freedom and far more general satisfaction with the education of Natal than with that of the Cape. It is right to say that the province owes much to Mr. P. A. Barnett, who was, for some years after the war, Head of its Education Department, and introduced the reforms which have brought its system up to the level of modern systems; and to his successor, Mr. C. J. Mudie, who has worked the system with tact and success. The mild report of the Natal Commission of 1909 is in marked contrast with the tone of dissatisfaction adopted by the last two Cape Commissions.

**The Transvaal.** The South African Republic first attempted to establish a system of schools in 1874, in the days of President Burgers. His scheme was characteristically modern and ambitious. There was to be no religion in school hours; the language used was to be Dutch or English, according to the parents' choice; and there were to be schools in every ward, secondary schools in the country towns, and a high school in Pretoria. In 1880, the British Government abolished the intermediate schools in the country towns and graded the schools. Two years later, the Republic abolished all distinctions between schools; arranged grants according to the standard of the child, the higher grant being for what was called intermediate education, and corresponded to the upper three standards of the elementary course in modern schools; introduced Bible teaching; and made Dutch the only medium of instruction. This last section was silently relaxed in the case of English children after the discovery of the gold fields, but was enforced after 1892, when a new law was passed which, amongst other things, excluded all teachers not belonging to some Protestant church from the State schools. As the result of some agitation, grants were given to English schools, but with conditions which made the concession valueless. The result was that the English children left school, and a fund was raised to make provision for them. But the law of 1892, while it failed badly on the Rand, did much for the country people before the war. After the war, much energy was put into the work of education by the new Government. It failed to win the sympathies of the old population, and a system of private schools sprang up; but under Lord Selborne a settlement was arrived at. After the grant of self-government, a school law was passed. The new system is a State system. The curriculum is a liberal one, and Bible teaching is given. There are advisory school boards. In the country, everything possible is done to concentrate the children; in the towns, vocational education is given proper attention, and there is a system of medical inspection. The discontent, though real, is less than might have been expected, since the majority of the teachers and educational officials came to the country after the war, and have had to learn to understand the older population. All schools are now free, except trade schools. The standard of compulsion is the sixth.

**The Orange Free State.** Before the war, the Superintendent of Education in the Free State presided over an efficient system. There was a well-thought-out organization of schools, controlled by local committees (largely elective); considerable freedom in regard to the language; a promising College; provision for poor children; and compulsory attendance; while a very considerable amount was collected in school fees. The weak point in the



*By permission of the South Australian Government*  
*Adelaide University*



*University of Bilbao, Spain*

*Photo by Hauser, Madrid*



system was the training of teachers. Since the war, great storms have swept the Free State. Lord Milner's government ran counter to the whole country population in matters of language and religion; and, after the grant of self-government, General Hertzog's resolute establishment of equality between the two languages was bitterly resented by the English. In both cases, separate schools were started, but have passed away. In the first, the settlement was arrived at by Lord Selborne; in the second, by a select Parliamentary committee assisted by the good sense of the people and the willing assent of General Hertzog. For the rest, the system which he established in the Free State is like that of the Transvaal, except that fees are paid in all schools where the parents can afford to pay.

**The Union.** Under the South Africa Act, the control of higher education is assigned to the Union, and that of other education to the provinces. No authoritative definition of higher education has been given, but in 1910 a conference of education officials decided to regard education above the standard of matriculation as higher education. The Union Department, therefore, has to do with the university and the colleges. As far as the schools are concerned, it has done good work by instituting a first-class teachers' certificate. An attempt to deal with technical education has led to nothing but the creation of a board. But the most important act of the Union in educational matters was taken not by the department, but by Parliament. This was the settlement of the language question, for years the great trouble of South African education. Naturally, under the old Dutch Government the language of the schools was Dutch; naturally under the English government it was English, so there has been much heart-burning. Parliament, during its first session, appointed a committee to inquire into the matter. This issued a report, which, with one alteration carrying out the views of a minority on the committee, was adopted by all the provinces except Natal. In the other three provinces, the settlement has been so far successful that there seems good reason to believe that it will prove the solution of the question. The committee found that, except in the Free State, where the two languages were on a footing of equality, English everywhere occupied the premier position. The arrangement now made is that, up to and including Standard IV, children shall be taught through their own language, the second language being introduced as a subsidiary medium if the parent so desires; and above Standard IV, children shall be taught through the language or languages selected by the parent; and that, unless the parent otherwise desires, both languages shall be taught as subjects. The inspection of schools and the training of teachers is to be on the same lines. Where necessary, there are to be bilingual classes. Thus there is compulsion in so far as children in the lower standards are compelled to learn their own language and use it as the chief medium, but there is none in regard to the second language, nor is there inequality between the two languages.

**Native and Coloured Education.** The educational systems of South Africa are primarily designed for the white children. In the Cape, through the greater part of the nineteenth century, the coloured children were educated with the poor white children, but in the last twenty years this has almost ceased.

The coloured children are educated in mission schools conducted by the churches, and the native children either in these or in the aborigines' schools, which are also under the churches; in a very few cases, the school boards have done something for these people. There are good training schools for natives controlled by the churches. Much dissatisfaction has been expressed by all concerned in native education with the hide-bound system of the Cape, but some improvements have recently been made as the result of the report of a Select Parliamentary Committee. In Natal, provision is made for the education of Indians as well as natives; but outside the Cape this is on a small scale, and everywhere much remains to be done. The people have discovered that it is unsatisfactory to apply to natives a form of education designed for white people; but little thought has yet been given, except by devoted missionaries, to the education suitable to the native.

**The University.** The colleges in South Africa have grown gradually, and at the present time there are eight, and more than one fit to become a university. The oldest is the South African College, which was established in 1829, but is really the offspring of the fund collected in the eighteenth century for the foundation of a Latin school. It was founded by the united efforts of all sections, but twenty years later, the Anglican Church founded the Diocesan College; and, five-and-twenty years later still, the Dutch people, feeling the need of a college in an atmosphere less exotic than Cape Town for the young man fresh from the farm, established the Victoria College at Stellenbosch. The St. Andrew's College had already been established at Graham's Town. Other colleges were founded at Somerset East, Graaff Reinet, and elsewhere, but all these have passed away as colleges. Since the war, the St. Andrew's College has, like the other colleges which have disappeared as such, confined itself to school work; but its university work has been taken over by a new institution, known as the Rhodes University College. Great advances have been made by the South African and Victoria Colleges. The colleges founded before the war in the Free State and Transvaal have developed a vigorous growth, and a University College has been founded in Natal.

The work of examining has been done by a body styling itself the University of the Cape of Good Hope, which in 1873 developed out of the older Board of Public Examiners. Since the colleges grew to their present estate, this arrangement has caused much difficulty. A board sitting in Cape Town was bearable when nearly all the college education was given within easy reach of its office, but not when colleges grew vigorous all over the enormous territory of the Union, nor when several of these have grown to a size not far from that of the newer universities in England. For a dozen years, schemes of reform have been mooted. These have been precipitated by large legacies left to the colleges at Cape Town and Stellenbosch, which were already strong enough to be universities. The Government hesitated and proposed a scheme federating all the colleges, but this was rejected by every one; and it appears that the obvious alternative has at last been adopted, and that the two great colleges are to be given charters now, and the others if and when they grow to the estate of universities. This scheme is full of hope and promise, and will, no doubt, be hailed as the setting

to rest of a controversy in which every one entitled to an opinion has taken part, and of which all have long been tired. No doubt, the several universities will develop on several lines. Each will find ample work to do, for South Africa and for the world of knowledge.

**The Future.** With the vexed questions of language, religion, and the University at rest, the future of education in South Africa looks bright. Yet it cannot be said that the people are contented with the position or the prospect. There are many who discuss whether the Union will take over the control of the schools. Another question is more urgent. It is, how to bring our educational institutions into touch with the needs and the heart of the people.

H. E. S. F.

#### **SOUTHAMPTON, UNIVERSITY COLLEGE OF.—**

Founded in 1852, according to the will of Henry R. Hartley, as Hartley Institution. Its main purpose was to offer the inhabitants of the town a liberal and professional education. At first, preparation for the army and for the civil service received greatest attention. In 1871, a science and art department was opened to afford preparation for the examinations of the Science and Art Departments, South Kensington. In 1896 university work was commenced. When the Government scheme for furthering university education appeared, Southampton raised enough money to obtain a charter, and the University College received grants from the Treasury. The Duke of Wellington was the first president. Day classes are held in art, science, medicine, dentistry and engineering, and there is a Day Training Department for teachers recognized by the Board of Education. Technical, commercial, industrial and scientific subjects are taught in the evening classes, and the public is admitted to certain lectures. The University cannot grant degrees but prepares students for degrees of other universities.

A chair of Music has recently been created, and a special scheme has been devised for the training of teachers.

Another development is the purchase of South Stoneham House as a hostel for men. This is an interesting William and Mary House, and was for some time occupied by the Sloane family.

The college has no endowments. The Hampshire County Council, the Southampton Borough Council, and other authorities in the province of Wessex have given it generous support, but their contributions are contingent upon private benefactions.

#### **SOUTH AUSTRALIA, EDUCATION IN.—Elementary.**

Up to 1875, elementary education was almost entirely in the hands of private schools subsidized by the State; but the Act of that year provided for the establishment and maintenance of schools from State funds, and made attendance compulsory on thirty-five days in each quarter, or in corporate towns on four days in each week, for all between the ages of 7 and 14 living within two miles of a school. Fees varying from 4d. to 6d. weekly were charged until 1891. The classification of schools and the curriculum followed are similar to those of New South Wales (*q.v.*). Manual training has received very little attention. There are five cookery centres in connection with high schools, but very few primary pupils receive the benefit of any such instruction, and woodwork is entirely neglected. Medical and dental supervision has been

lately arranged for, but only one medical and one dental inspector and one trained nurse have so far been appointed to cope with the work of the whole State.

**Secondary.** Until 1908, this was, with one exception only, provided by private schools, though grants amounting in 1907 to £2,810 were made by the Government to certain institutions, the chief being the Adelaide Advanced School for Girls. This, together with the Pupil Teachers' School, was absorbed by the Adelaide High School, established by the State in 1908. Twenty district high schools have since been founded, providing a four or five years' course of secondary instruction specially intended to maintain a supply of junior teachers, and to prepare for the university. These schools were attended in 1918 by 2,186 pupils, and the Adelaide High School by 983. The curriculum is entirely academic: there is no manual training, nor any preparation for practical pursuits except housewifery. Sixty exhibitions of £20-£40 a year are given for the encouragement of secondary education, and twelve bursaries of £20 with free tuition are tenable at the University.

**Agricultural.** In the primary schools, little has been done except through Nature study, while no secondary agricultural education at all has yet been attempted. This State was, however, the first to establish an institution for higher instruction, the Roseworthy Agricultural College being opened in 1882; it has a farm of 1,550 acres, with accommodation for fifty resident students.

**Training of Teachers.** The pupil-teacher system is still in vogue, the training concluding with a one-year course (which may in special circumstances be extended to a second year) at the Teachers' College, Adelaide, where courses are also provided for secondary teachers. In 1918 there were eighty-eight students in training, of whom seventy-six were in their first year.

**The University of Adelaide** was established in 1874, the cost of the buildings, when formally opened in 1882, having been £38,000. It has benefited greatly by the generous benefactions of Sir Thomas Elder, which amount to nearly £100,000. Degrees are granted in arts, science, law, medicine, and music. There are, at present, eleven professors and thirty-eight lecturers, together with a staff of twelve at the Elder Conservatorium of Music.

**Technical.** The chief institution is the School of Mines and Industries in Adelaide, founded in 1889, and having in 1913 an enrolment of 1,878 students. There are six other schools of mines at country centres, and a School of Applied Arts in Adelaide. These are, at present, under the management of local councils, but it is probable that they will shortly pass under the authority of the Education Department, which provides the bulk of the cost of maintenance.

J. H. H.

**SOUTH KENSINGTON MUSEUM.**—The history of this museum, now known as the Victoria and Albert Museum, began in 1852, when the Museum of Ornamental Art was established at Marlborough House. From 1837, specimens of manufactures, models, casts, prints, and other exhibits had been purchased as the necessary equipment for instruction in design and ornamental art in the schools of design which had been instituted in London, Birmingham, Manchester, and other large towns. In 1851, the Board of Trade, with which the Schools of Design had been connected, appointed a

committee to select objects notable for the excellence of their art or workmanship to be purchased from the Exhibition of the Works of Industry of all Nations then being held in London. These, with many objects stored away in the vaults of the Metropolitan School of Design at Somerset House, and certain objects lent by Queen Victoria, were placed in Marlborough House, where five rooms were set apart to receive them; and in September, 1852, the collection was opened as a Museum of Ornamental and Decorative Art. In 1856 the collection was removed to South Kensington, together with the National Art Training School which had also been temporarily housed at Marlborough House. Permanent buildings were commenced in 1860; frequent extensions were made; and the present buildings, erected 1899 to 1909, were opened in June, 1909, by King Edward VII. The new buildings have a frontage of 720 ft. to Cromwell Road and 275 ft. to Exhibition Road, cover  $1\frac{1}{2}$  acres, and contain three-quarters of a mile of galleries.

A large part of the ground floor is devoted to sculpture, rooms being arranged so as to show as far as possible the chronological order of the development of Italian sculpture from the thirteenth to the seventeenth centuries, supplemented by rooms illustrating the sculpture of other European countries. On the first floor are exhibits of medals, and sculptures in bronze and ivories. The second floor contains Ceramics, including glass, jade, crystals, amber, and painted enamels from Ancient Egyptian to modern times; developments of modern pottery, with specimens of the works of Josiah Wedgwood and Bernard Palissy. Other classes of exhibits include engraving, illustration and design, copper and wood processes, mediaeval lettering, book production; metalwork, clocks, and cutlery; textiles, carpets, embroideries, costumes, and lace; Gothic and Renaissance woodwork of all European nations; leather work, furniture, and lacquer work.

**SOUTHLANDS TRAINING COLLEGE (Battersea).**—This was opened in 1872 by the Wesleyan Committee of Education, for the training of schoolmistresses in Wesleyan schools. The first Principal was the Rev. G. W. Olver, who had previously been secretary of Westminster Training College. In 1902 the College accommodated 110 students, and the large increase in applications for admission led the Wesleyan Committee to spend large sums obtained from the Twentieth Century Fund in extensions of the College. A new wing was built, providing an assembly hall, a chemical laboratory, a new library, and an art room. The courses taken by the students were originally preparatory to the teachers' certificate examinations, but for many years past university courses have also been taken, and a few students each year pass the Intermediate Arts Examination of the University of London. A few students remain for a third year's training, and are usually sent to Paris to study at the International Guild. The practising schools were rebuilt in 1906, but no longer remain the only training-ground in the practice of teaching. Every year, Southlands' students visit and work in many London schools, and a few are sent annually to gain rural experience near Leith Hill. The College is well provided with social, literary, and athletic societies, and possesses a good gymnasium, erected in 1910. The students come from all parts of England, and usually gain admission on passing a Senior Local or a Matriculation examination.

**SPACE, THE PSYCHOLOGY OF.**—The space which we call real space is not something we perceive, but something we conceive. We perceive spatial qualities; we see colours, shapes, and forms; we feel surfaces of objects—but none of these is thought of as real space. Real space is the space we make propositions about in mathematics; its properties are the subject of the science of geometry.

The concept or idea of space is the idea of a perfectly homogeneous medium, unbounded, empty (*i.e.* no sensible quality belongs to space, though any kind of body may occupy it). Space contains objects, but is itself absolutely indifferent to what it contains. It is a substratum in which things can lie spread out, one outside another; but it is itself thought of as absolutely indestructible and unalterable, even were everything it contains annihilated.

**Mathematical Space.** Mathematics treats space as quantity without quality; measurable in three directions, called its dimensions; not composed of parts, its parts being points or positions within it; continuous in the sense that no two points are next one another, for between any two there is always another.

The physico-mathematical problem in regard to space is the question whether it is absolute, and therefore to be treated as a constant in all equations; or relative, in the sense of being dependent on the observer's system of relative movement of translation, and variable with it. The absolute theory is associated with the name of Newton. The modern theory, known as the Principle of Relativity (*q.v.*), is the formulation of Einstein and Minkowski.

**The Psychological Problem.** The psychological problem of space is concerned with the nature of spatial perception, and with the origin of the idea of space. Some have held that space is an innate idea, part of the original equipment of the mind; others, that it is derived from experience.

In the philosophy of Kant, space (and also time) is a form of sense-perception, not derived from experience, but a condition of experience. It is *a priori* (*i.e.* logically prior to any actual experience); and not *a posteriori* (*i.e.* dependent upon particular experience). It is not a definite idea thought by the mind, but a form or frame into which the mind receives, and so gives unity and definiteness to the manifold of sense. Space is also a *synthetic*, not an *analytic*, form of unity; it is a unity the mind gives to reality, not a unity it discerns in reality. This is the transcendental theory of space.

The empirical theories which are opposed to this fall into two groups, and are named: (*a*) genetic and (*b*) nativist. The genetic theories are those which derive the idea of space from a kind of unconscious reasoning. The nativist, those which hold that the idea is directly conveyed to the mind by certain kinds of sense-experience.

The principal *genetic theories* are: (1) The view that the idea of space is derived from the experience of simultaneity, the experience of succession, and the perception of the reversibility of the order of some successive sensations. Some form of this theory was held by the English empiricists, J. S. Mill, Herbert Spencer, A. Bain, and many others. (2) The "local sign" theory of Lotze and others. This supposes that all sensations, though themselves unextended, yet come to the mind with a "local sign," referring them to, or identifying them with, some definite position on the surface of the



body, and these local signs are the origin of the idea of space. (3) The "action theory" of Muensterberg, according to which "direction value" is the starting-point of the development of space perception. Direction value is not the point on the body at which the sensation is localized, but the direction towards which the movement of the body is attracted. Every sensation opens or closes a path of motor discharge, and the direction of this path is the origin of the development of the idea of space.

The *nativist theories* all hold that the origin of the idea of space is a quality named "extensity" or "voluminousness"; but, according to some philosophers, this quality is attached to certain definite classes of sensations only, according to others it is attached to all sensations but in varying degree. The general theory is associated in modern times chiefly with William James.

The famous theory propounded by Berkeley in the *Essay towards a New Theory of Vision* (1709) is also a nativist theory. According to it, distance is not perceived by sight, but only by touch, and visual and tactile perceptions have nothing in common. The magnitude of objects is always a tactile, not a visual, magnitude; visual magnitude is apparent, not real; and experience has caused visual perceptions to become a kind of language by which tactile perceptions are signified.

It is probable that no one of these theories is sufficient of itself to account for the origin of the idea of space. Professor Stout has pointed out that the developed notion of space supposes *relational order* of co-existence, position, direction, and distance, and also particular items in this relational order. Sensations distinctly and pre-eminently extensive, as those of touch and sight, do not give *explicit* apprehension of space relations. Another factor besides extensity is necessary, namely, active movement. The two factors, extensity and movement, must co-operate in a process having unity and continuity of interest; but, in addition to these, we have to recognize congenital or inherited dispositions.

H. W. C.

#### SPAIN, THE EDUCATIONAL SYSTEM OF.—

Direct historical precedent for the present position of pedagogic legislation in Spain may be sought in the Act of 1857 and its regulations, which were drawn up in 1859. The measure constitutes a codification of preceding enactments rather than a starting point for a new organization, and it bears a bureaucratic rather than a pedagogic character. Neither liberal nor ultramontane, it is imbued with a spirit of concession and compromise which characterized the moderate party. This Act has formed the basis and the source of all the present educational legislation, in spite of the innumerable modifications, many of them introduced arbitrarily and by simple ministerial decrees.

The ultra-moderate party promulgated the reactionary Catalina Act of 1868 and abolished the normal schools. The revolutionary Government re-enacted previous legislation in October, 1868; and Ruiz Zorrilla established freedom of education.

The two opposing forces which have contended for the predominance of their respective educational ideas amid the general indifference of the country—an indifference which, happily, shows signs of an awakening—are (1) the ultramontane party and (2) the *Institucion libre de Eusefianza* (the Association for Educational Freedom).

The *Institucion libre de Eusefianza* is at once

a centre of elementary and secondary education, a laboratory of pedagogy, and a centre of pedagogic and social activity. The general mass of politicians, the ultramontane parties as well as those termed liberal and radical, are scarcely concerned at all with problems outside the political situation of "clericalism." Even the Socialist party as yet fails to see that national education is the first of social problems. This absence of collaboration of public opinion in educational matters results in the contest between the two above-mentioned parties being waged with a passion and a bitterness and, what is worse, at times with personalities which have greatly hindered progress. Don Francisco Giner de los Rios, the venerable founder of the *Institucion libre de Eusefianza* (which is a private pedagogic association established in 1876, without any official character or Government subvention, and outside every religious body, every philosophical school, and every political party), always desired to keep aloof from this atmosphere of asperity and hostility. He was convinced of the need for constructive work, and saw the desirability of drawing inspiration from the objective contemplation of things and of problems. Of this ideal, Don Francisco's disciple, Costa, was the most eloquent protagonist. The motto which he intended to place at the head of his *Essays on Education* published by *La Lectura*, a work consisting of a collection of articles on pedagogy, in whose preparation and revision he was surprised by death in 1915, is very significant. "In this war," he says, "this is a book of peace."

The pedagogic movement initiated by the *Institucion libre* exercised great influence on the liberal party, and resulted in the creation of an Infant School Association, of the Museum of Pedagogy, and in the reorganization of the Normal School for Women Teachers.

In 1887, the normal schools and the Inspectorate were placed under the direct control of the State. In 1900, a Ministry of Public Instruction and of Fine Arts (formerly a department of the Ministry of Public Works) was created. In 1904, during the Romanone's Ministry, the State included in the Estimates the payment of teachers' salaries and the maintenance of school furniture and appliances, since the municipalities had been in the habit of neglecting these duties.

**Present-day Administration.** The Minister of Public Instruction and of Fine Arts has charge of national education. The Ministry, at the present time, consists of an under-secretaryship and of three general directorates: (1) The General Directorate of the Geographical and Statistical Institute, which deals with land survey, maps, census, population, etc.; (2) the General Directorate of Elementary Education, created on 1st January, 1911, with a technical rather than a bureaucratic or administrative character; (3) the General Directorate of Fine Arts, which was finally created by the Estimates of 1915. The Council of Public Instruction assists the Minister. Its functions are specified by the Royal Decree of 11th October, 1898. It is composed of 40 members, 25 appointed by the Minister and 15 chosen by the Council itself. The office of councillor is honorary and unpaid, and the Council is a purely consultative body. After the Minister, the Under-Secretary and the Director-General, there follow, in the administrative hierarchy, the rectors of the universities, who are the heads of education in their respective university districts. There is

also in the chief towns of the district a University Council to advise the rectors in serious matters, more especially in dealing with questions of discipline between professors and students. It is composed of the rector, the deans of the faculties, and the directors of the tutorial establishments for secondary education and for special subjects. A provincial junta for elementary education exists in every provincial capital for the fostering and protection of popular education and culture. Its members are: The civil governor of the province; the president of the provincial council; a professor of the university; the director of the institute; the inspectors, male and female; the director and directress of the normal schools for men and women teachers; the sanitary inspector; the provincial architect; and the mayor of the provincial capital. The reforms, introduced by Royal decree, 5th March, 1913, suppressed its executive functions with regard to teachers, and the suppressed administrative functions have passed to the administrative sections of elementary education. One of these exists in every provincial capital, and all are under the control of the General Directorate of elementary teaching. The "sections" exercise two functions: one of administration, the other of accountability. Local juntas, as well as provincial, have suffered a diminution of their executive and technical functions. Nothing is left to the municipalities but the duty of providing school accommodation and house-room for teachers; and these minor duties are generally performed as inefficiently as were the payments of teachers' salaries in earlier days. Not even town councils such as those of Madrid, Barcelona, and Bilbao enjoy sufficient prestige for public opinion to second their spontaneous aspirations in educational matters with any enthusiasm. Royal delegations of elementary education have been created in Madrid and certain important provincial capitals with scant results. They exercise the functions of the presidents of local juntas, but are nominated by the Government, whose representatives they are.

**Inspection.** The inspection of education is entrusted to the General Inspectorate, the Provincial Inspectorate, and the Local Inspectorate. The General Inspectorate is staffed with four general inspectors, one of whom is assigned to elementary education and is the head of the central department of this branch. His functions are, in general, administrative. There exists in every province a Provincial Inspectorate, whose direction is entrusted to the senior inspector. The staff to-day consists of an inspector of the province of Madrid, 9 district inspectors, thirty-nine sub-district inspectors, 45 communal inspectors, and 45 assistant inspectors. Each has an allowance for travelling expenses. Inspectors reside in the capital of the province to which they are appointed. After each visit, the inspector must assemble the teachers and expound to them his observations regarding the pedagogic working of the school. Admission to the inspectorate is by competitive examination, which is oral, written, and practical. The subjects are: pedagogy, comparative educational legislation, and the technique of inspection. One of the exercises consists in the translation of a page of a book dealing with pedagogy in French, German, English, and Italian at the choice of the examiner. Promotion within the inspectorate is by seniority alone. Local inspection is delegated to the local juntas of elementary education. Pedagogic inspection is

reserved exclusively to the provincial inspectors of the State, and this precaution has contributed to withdraw the teaching profession from the passions and difficulties of local life. Women inspectors exist only in very modest numbers and by way of experiment. The results are excellent, and more appointments are now demanded by public opinion. Medical inspection, by Royal Decrees of 16th June, 1911, and 20th September, 1913, has been created with a general and compulsory character in every school. The effect of these measures has as yet been small, and at the present moment the intention is to consolidate and raise their importance; but the authorities have no clear views on the subject, nor do the Estimates provide sufficient means.

**Public Elementary Schools.** Private elementary education is free (*i.e.* legally permitted). The State schools are officially termed "National Schools for Elementary Education." They are maintained wholly or in part by public funds, charitable foundations, and other institutions having educational aims. By Royal Decree, 8th June, 1910, schools desiring to be classed as National are arranged in six grades. The number of these public elementary schools, according to the last official statistics, is approximately 26,589. According to the criterion laid down by the Act of 1857, there is a deficiency in Spain at the present time of 9,500 schools, but doubtless the real deficiency is greater. Public opinion now demands the provision of new schools, which will provide a means of contending against the illiteracy from which half the population suffers to-day. Elementary education, with few exceptions which are gradually disappearing, is gratuitous. It is compulsory from 6 to 10 years of age. Even though compulsion is not effectually enforced, attendance tends to increase. The subjects taught were fixed by a Code of 1910 (Royal Decree, 26th October), and include those usually taught in European schools. So, as regards religion, the Royal Decree of 25th April, 1913, enacted that the teaching of sacred doctrine and history should be compulsory, as before; but the children are excepted where parents object. Children attend school for three hours in the morning and three in the afternoon. "Teachers are allowed to employ those methods which they deem best for the exercise of their profession." Holidays begin on 18th July and end on 31st August. Night classes must be provided for adults in every elementary school to supplement elementary education, and as a training in citizenship. In 1903 there were in existence 5,341 classes for adults; in 1908 they had increased to 11,828. In 1913, twenty-eight schools for adults were created.

**Teachers.** At the present time only two classes of qualified teachers exist: one for elementary schools, the other for normal schools. The present scale of payment for the teaching profession begins with a minimum salary of 2,000 pesetas (£70) and rises to a maximum of 8,000 (£280). Teachers have a right to house accommodation.

**Normal Schools.** The creation of normal schools, as well as of infant schools, is intimately connected with the name of Don Pablo de Montesinos, through whom we may perceive the influence of England in our national education. The first normal school was inaugurated in Madrid (1839) under the direction of Montesinos. At the present time, 42 normal schools for men and 46 for women teachers are in existence, each with 6 regular professors, appointed by competitive examination, or promoted from the

School of Superior Studies for the Teaching Profession. The subjects taught are: Spanish Grammar and Literature, Pedagogics, the History of Pedagogy and Scholastic Legislation, Geography, History, Mathematics, Physics, Chemistry, Natural History, and Agriculture. Pupils generally enter the school with small equipment of culture, and this tends to keep down the level of education. Promotion is by seniority alone. The School of Superior Studies in the teaching profession are destined for the training of inspectors of elementary education and of professors in normal schools. They are governed by Royal Decree (30th August, 1914); but, by way of experiment, pedagogic autonomy has been conceded to them, and at the present moment they are drawing up their own regulations for self-government. The entrance examination (to which the higher grades of teachers and licentiates in philosophy, literature, and science alone are admitted) deals with subjects which are studied in the normal schools. The pupils receive, during each of the three courses, a sum of money for maintenance. To these schools is due not only an improvement in the professional level of the inspectors and professors in normal schools, but a greater and more extended interest in pedagogic problems and studies.

**Secondary Education.** Apart from the mediaeval grammar schools and the colleges of the Humanities, vigorously attacked in the time of Carlos III for their archaic and incompetent character, the organization of secondary education dates from the educational reforms of 1820, 1836, and 1845. The dominant idea was the education of the middle classes, and still remains so. In recent years, secondary schools have undergone changes due to legislative measures absolutely superficial and sterile. There exist 57 secondary schools: 2 in Madrid, 1 in each provincial capital, and 7 in other important cities. The curriculum includes: Spanish, French, and Latin Languages and Literature; General History; Spanish History; Arithmetic; Algebra; Geometry; Trigonometry; Psychology and Logic; Ethics and Civil Law; Physics and Chemistry; Mechanics; Calligraphy; Drawing; and Gymnastics. Religious instruction is optional, and is placed in charge of a priest. This curriculum is spread over six years, and terminates in a general examination, on the result of which is conferred the degree of bachelor. Each secondary school is staffed with from 9 to 10 professors, appointed by competitive examination, who must be licentiates in literature or science. The director is nominated by the Minister from among the professors at the proposal of the Senate. Each professor takes one or two classes a day of an hour's duration, and examines the students at the end of each year's course. Studies for the bachelor's degree usually last from 10 to 16 years of age approximately.

**Universities.** In Spain, these date from the thirteenth century. Some are Royal foundations (Salamanca, 1215); others, municipal (Valladolid, 1260); and a few episcopal (Palencia, 1212). The most important of these is that of Salamanca (*q.v.*). During the seventeenth and eighteenth centuries, Spanish universities fell into a decay from which the generous efforts of the Government of Carlos III failed to awaken them. These efforts were unfortunately overtaken by the Napoleonic invasion and the War of Independence which ensued. When the universities were reorganized, the Spanish traditions, so similar to the English, were in great measure lost.

French methods were adopted and are still preferentially followed. At present, Spain has ten universities: Madrid (*q.v.*), Barcelona, Granada (*q.v.*), Oviedo, Salamanca (*q.v.*), Santiago, Saragossa, Seville (*q.v.*), Valencia, and Valladolid. The faculties are: Philosophy and Literature (three sections, Literature, History, and Philosophy); Science (four sections, the Exact Sciences, the Physical Sciences, Chemistry, and Biology); Law; Medicine; and Pharmacy. No university possesses those faculties and sections complete except the University of Madrid. In Madrid, also, the five doctors' degrees of the respective faculties are exclusively obtained. The degree of bachelor suffices as entrance to the university. To obtain the degree of licentiate in a faculty, it is necessary to undergo a special examination after having attended the university courses. To obtain a doctor's degree, which, generally, is not required except to qualify for a university professorship, another year of studies and the presentation of an original thesis suffice.

The Minister, Señor Burell, has recently abolished the general examination for licentiate, but the measure has been ill-received by the university senates, who consider that these general examinations alone have any pedagogic value and ought to be maintained. Professors are appointed by competitive examination; they have a right to a pension, and, with certain exceptions, retirement is compulsory at 70 years of age.

Women may attend all the courses and aspire to all degrees, and at each term the number of women who take degrees becomes more important. They may also exercise the profession of doctor of medicine and of pharmaceutical chemist, but the legal profession is forbidden to them by the "Libro de las Partidas (the Code of Alfonso X)."

**Technical Schools, Senior.** There exists a School of Engineers for Roads, Canals, and Harbours; one for Agricultural Engineers; one for Mining Engineers; and another for Industrial Engineers, situated at Madrid. The school for Alpine Engineers is installed at the Escorial. All the schools are under the Ministry of Public Works, with the exception of the Industrial Engineers, who are under the Ministry of Public Instruction. The number of places in each school is limited, and the State is compelled to take into its service all engineers in order of seniority who, at the end of their studies, have not been applied for by private firms who alone have the right of selection. Professional opinion protests generally at the excessive duration of these studies—six years for agricultural and road engineers—and, above all, at their excessively theoretical character. For this reason, the schools are now striving to apply themselves more closely to practical work.

**Technical Schools, Junior.** An attempt to solve the problem of apprenticeship, which is beginning to attract serious attention in Spain, is being inefficiently made in establishments termed specialized technical schools. The School of Arts and Crafts was reorganized by Royal Decree, 16th Dec., 1910; and in it skilled mechanicians, skilled electricians, skilled chemists, and experts are trained. The entrance age is from 12 years upwards. These professions are deemed auxiliary to those of industrial engineers and architects, and are much sought after. Studies which are of an elementary character are supplemented by continual practical demonstrations.

**National Museum of Pedagogy.** The interest in

pedagogic science promoted by the principles and methods of the Institución libre de Enseñanza (see p. 1572) was accentuated, in 1882, by the co-operation of the Liberal Party, and the Albareda Ministry advised King Alfonso XII to create this museum in order to further the progress of national education which His Majesty desired to raise to the level of that in other European nations. Founded in Madrid by Royal Decree, 6th May, 1882, the Institution at first was of an elementary character, but since 1895 it has been called upon to serve all branches of education. The law assigned three chief functions to the foundation: (1) To promote and verify those studies which might contribute to elucidate educational problems; (2) to provide by its library and collections adequate means for the attainment of pedagogic culture; (3) to make the results of its labours known.

The library is now richly supplied with general works, although the department of pedagogy is especially furnished with books of reference and technical publications. It is one of the libraries most frequented by students and professors, and was the first public circulating library established in Spain. The museum also provides special lectures and courses of study in its laboratories. It has issued an extensive series of publications, which it sends gratis to interested persons. In its desire to give an object-lesson to the country, it has provided demonstrations of up-to-date methods of European education. It had already organized Holiday School Courses as far back as 1887. The example has spread from Madrid to the provinces, especially to Barcelona, where much attention is being given to educational problems. The above sketch can, however, give but a faint idea of the profound, intimate, and steadfast work which has been done by the Museum—its efforts to inspire the members of the teaching profession, to arouse public opinion, and to promote a better understanding and a greater desire to foster and stimulate an interest in national education in political circles. The soul of this work is Don Manuel B. Cossio, the Director of the Museum since its foundation, who has been loyally seconded by the staff and especially by the Assistant Director (Don Ricardo Rubio).

The labours of Señor Cossio, who was the beloved disciple of Don Francisco Giner de los Rios from the beginning, and who is, at the present time, continuing his work, have acquired an even greater renown and amplitude by his appointment in 1901 as Professor of Advanced Pedagogics. The new Chair, founded in the Faculty of Philosophy and Literature at the University of Madrid, has, up to the present time, not been held at that university, although now an assistant university professorship has been established there: Señor Cossio holds his Chair at the Museum of Pedagogy itself, thus completing its work and extending its influence on the teaching profession.

The Junta for Scientific Studies and Research is the most genuine and effective indication of the movement for the reform and improvement of national culture. The following principles have served as a basis for the foundation of this junta (11th Jan., 1907): (1) The continuity and regularity in the work, which the reorganization of national culture implies, demands a neutral organism which, being placed outside party strife, shall maintain its independence and prestige through all political changes; (2) in order to rehabilitate national education by the training of future generations, the

formation of a selected professoriate is an indispensable postulate (the Junta grants annually, after mature selection, a hundred travelling scholarships to the various countries of Europe and to America); (3) in order that the holders of scholarships may be adequately prepared, it is necessary to establish special courses of study; (4) in order to profit by the advantages gained by the holders of scholarships, it is necessary to incorporate them on their return in the official professoriate, and to create a department of scientific research which shall complete and supplement others that have an official existence (thus laboratories have been created for physico-chemical and natural sciences, and departments for historical, philological, and philosophical research); (5) the results of certain of these researches ought to be published. Residences for students of both sexes undergoing various courses of study have been created with extraordinary success.

**Bibliography.** The general law of Public Instruction of 1857 still forms the basis of Spanish legislation. All subsequent legislation is of a partial and fragmentary nature, and has not yet been codified, as demanded by public opinion, so as to constitute another coherent, organic law. D. B.

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**SPAIN, THE RENAISSANCE IN.**—The Renaissance of the fifteenth century is associated with Italy, and of the sixteenth century with Northern Europe; but Spain has a strong claim to a high place in both the fifteenth and sixteenth centuries. In the Mediaeval Renaissance, when Moorish scholarships filtered through Spain to Europe, Spain was the leading nation in the dissemination of culture. (See MOORISH LEARNING IN SPAIN.) But when the Moors were driven out of Granada, in 1492, the old Spanish tradition of culture was not lost, but diverted in the new channels of humanism derived mainly from Italy. Thus Arias Barbosa, the Spanish pupil of the Italian scholar Politian, came back from his Italian training to teach Greek in the University of Salamanca. But the greatest name amongst Spanish humanists was that of Antonio of Lébrija (1444-1522) (Antonius Nebrissensis), who had spent ten years in Italy, partly at the Spanish Collegio at Bologna; and came back to Spain in 1473 to lecture, first at Seville, afterwards at Salamanca, and finally at Alcalá. Antonio is best known as the compiler of a Latin grammar, and as the writer of the first Latin and Spanish dictionary. In 1492, at Salamanca, he wrote, in Castilian, the *Gramática sobre la lengua castellana*. Mr. Bywater has shown his significance as the discoverer of a new subject of philological inquiry,

viz., the ancient pronunciation of Latin and Greek. Antonio, it has been said, was to Spain what Laurentius Valla was to Italy or Erasmus (*q.v.*) to Northern Europe. He was brought by Cardinal Jiménez (Ximenes) to a Chair at Alcalá; took part in the arrangements for, if not in the commentaries on, the great Alcalá, *i.e.* in latinized form the "Complutensian" Polyglot Bible.

**The Polyglot Bible.** This was the greatest achievement of the Spanish Renaissance. It included the preparation of the whole text of the Bible. It was produced under the direction of Cardinal Jiménez. It was not only a text in Greek and Latin, like the New Testament edited by Erasmus (*q.v.*), but of the whole Bible; and in one part or other of the work, the Hebrew, Greek, Latin, and Chaldaic languages were introduced. The text was accompanied by grammars, lexicons, commentaries. The labour on the work extended from 1502 to 1514 (twelve years), and the result was issued in six folio volumes. The New Testament portion was completed 10th January, 1514; but was not published even when the whole Bible was ready, till 10th July, 1517. Copies were only on sale in 1522 and, of these, 600 were printed. On the other hand, Erasmus's Greek text, and Latin translation of the New Testament, was published at Basle 1st March, 1516. Yet, though the complete New Testament in a Greek text was first ready for publication at Alcalá in 1514, Erasmus's was the first published. It is to be observed that the two versions were quite independent. The Alcalá Polyglot Bible was a much larger enterprise, and could only be accomplished by a group of scholars. Jiménez spared no expense on the purchase of suitable old MSS., and invited scholars from a distance to help to form a company of Oriental scholars. Thus Demetrius Ducas came from Crete, for Greek. Three learned Jews, converts to Christianity, dealt with the Hebrew—Alfonso, a physician at Alcalá; Paul Coronell of Sigovia, afterwards Professor of Theology at Salamanca; and Alfonso de Zamora, who prepared a Hebrew grammar and dictionary. Other scholars employed on Jiménez's *Polyglot Bible* were Lopez de Zuniga (better known as Stunica), the controversialist, who contended with Erasmus, and Nunez de Guzman (1471–1552) or Nonius Pintianus (Pintianus being the Latin name for an inhabitant of Valladolid), who, as a classicist, published an edition of Seneca. Cardinal Jiménez, the munificent patron who provided funds to make this Polyglot possible, also founded the College of the Three Languages at Alcalá, dedicated to St. Ildefonso (to whom the cathedral at Toledo was dedicated) in 1500. Jiménez was thus to Spain what Busleiden was to Flanders (at Louvain) and Bishop Richard Fox to England (at Oxford), the founder of the first college to include the study of Greek in his own country.

**The Court of Ferdinand and Isabella, and Its Influence.** The whole Court of Ferdinand and Isabella (the latter ruled over Castile from 1474–1504) was permeated with the Renaissance culture, and became the leading Court in Europe. Italian scholars such as Peter Martyr came to the Spanish Court, as well as Lucio Marineo Siculo, afterwards the learned historian of Spain. Erasmus states that in classical studies, Spanish scholars not only aroused the admiration of other nations, but also served as examples to them. One of the directions in which Spain led the way was in the education of women. In this respect the Age of Isabella of Castile (1474–1504) is to Spain what the Age of

Queen Elizabeth was, 100 years later, to England. She set herself in mature years to study Latin, learned modern languages, did beautiful embroidery, founded a library at Toledo in 1477, as well as ruled her kingdom.

Ladies of the Court followed Queen Isabella (*e.g.* Marchioness of Monteagudo and the donna Maria Pacheco); whilst scholars like Librija taught their daughters classics. Two ladies were chosen as professors: one in classics in the University of Salamanca; the other in history in the University of Alcalá. Catharine of Aragon, daughter of Ferdinand and Isabella, was brought up in the atmosphere of learning. Her tutors were Antonio and Alessandro Geraldino, and the education she received made her fully sympathetic to the claims of history and of Renaissance humanism. After she married the English king, Henry VIII, in 1509, Spanish culture was represented in the English Court for about twenty years (Catharine was divorced in 1531). Erasmus tells us that she loved literature, and asks: "Who would not wish to live in such a Court?" This period, indeed, might be termed the Age of Queen Catharine, and is typified by the welcome given to the Spanish scholar, Juan Luis Vives (*q.v.*). Educationally, the Spanish Renaissance is marked by the impetus given to geography, through Spanish discoveries and enterprises, and accounts of travels in the New World. Richard Hakluyt acknowledges his indebtedness to the Spanish writers in his Preface to the *Principal Navigations* in 1589. In the second edition, 1598, Hakluyt bases a plea for "a Lecture of Navigation in London" on the work accomplished by the Spanish geographers. The Spaniards maintained a lecturer at Seville, and required naval officers to satisfy a board of examiners before appointment to the charge of ships. Spain also led the way in dealing with the deaf. The earliest known teacher of deaf mutes was Pedro Ponce de Leon, who died in 1584; and the first book on the education of the deaf is by another Spaniard, Juan Pablo Bonet, whose book *Reducción de las letras, y arte para enseñar á hablar los mudos* was published in 1620.

F. W.

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**SPANISH LANGUAGE, THE TEACHING OF THE.**—The Spanish language is admirably fitted to be the second foreign language (and in some districts the first) to be studied in secondary schools. It is of very great commercial importance, being the language almost universally spoken in a huge field open to English trade. (See SPANISH, COMMERCIAL.) It has a literature combining, as does the language, vigour with grace, and amazing fertility with genius. It gives an insight into the character, customs and history of a people too little known, with memories of a great past, and, as many think, reawakening to a great future.

And, though to gain complete command over any language is difficult, Spanish is easier for an average pupil to master, especially one with some knowledge of French or Latin, than its two chief competitors, German and Russian.

Much that might be said of method in the teaching of Spanish has already been written in the article on the French language, with the principles of which the writer of the present article is completely in agreement. It must be remembered, however, that practical considerations largely determine the method to be followed in actual school practice, and a firm hold on such principles as the following, which are of the greatest importance in all modern language teaching, will save many a teacher from shipwreck—

(1) The goal to be aimed at is to give possession of a real command of the language, not merely an understanding of it—at a “speaking and writing” knowledge, and not a “reading” knowledge only.

(2) “The essential condition for acquiring a real command of a language is to establish in connection with that language the same direct association between experience and expression as exists in the use of the Mother Tongue” (L. de Glehn, in Board of Education Circ. 797.)

(3) The irreducible minimum of grammatical knowledge must be “perfectly possessed,” by which phrase it is meant that the pupil should be able to apply this knowledge in any way.

(4) Since pronunciation is, as it were, the orthography of speech, it is no less important than spelling, and the principal work of the first stage of instruction must be the acquisition and practice of the correct sounds of the language. The method of instruction must be scientific, and the ideal to be aimed at, not an *approximate*, but a *perfect* rendering of the Spanish speech-sounds.

Strict adherence to these principles and their logical consequences would probably result in a course where oral or written free composition (in the widest sense of the term) was the centre of instruction; where pronunciation was taught scientifically and from the earliest stages; where grammar, which would normally be taught inductively, was applied at every stage of the course; and where interpretation of new reading material was practised through explanation in the foreign tongue and translation practised only as an art in the highest stages.

But we have to remember that a second foreign language, as studied under normal, actual conditions: (1) receives fewer years than the first language, and years which vary in number both in different schools and for different pupils in any one school, (2) must be taught by a method bearing at least some resemblance to that practised by teachers of the first language in the same school. The Spanish teacher will, therefore, while bearing in mind principles such as those just enunciated, endeavour to frame his teaching so that his pupils may utilize to the full the training and experience which they have gained in their study of the earlier foreign language.

The notes which follow are set down for the guidance of the practical teacher of Spanish, who will be able to modify them to meet his own needs, according to what has been said above—

(1) **Grammar.** While Spanish grammar seems at the outset easy, from its similarity to that of French, its apparent simplicity is in reality rather

deceptive. The fundamental distinctions between *estar* and *ser*, the complicated system of so-called “root-changing,” “consonant-changing” and “irregular” verbs, and the many places in which a knowledge of French leads the learner astray are apt to discourage him before he has proceeded very far in his studies. It is, therefore, of the first importance that the grammar used should not be swollen by useless rules or lists of exceptions; the irreducible minimum referred to above should be clearly and cogently stated, and in a form easily remembered. Attention to this on the part of teacher or student will greatly simplify the study in the later stages.

(2) **Phonetics.** It had for many years been a subject of discussion, even among teachers using modern methods, whether or no phonetic script should be used in the teaching of the first language, and if so, whether the use should be exclusive or partial, and at what stage it should be introduced to the pupils. Without entering into this question, it may be stated that the use of phonetic script in Spanish is not open to one objection which has (perhaps with over-emphasis) been urged against its use in the teaching of French: viz., that pupils tend to confuse the phonetic with the nomic script. For, in the Spanish language, sounds and symbols correspond much more nearly than in English or French, and to the uninitiated Spaniard the phonetic transcription of a Spanish passage resembles the nomic version so greatly that he can read it with ease. Hence the teacher may, with advantage, and without fear of confusion, give phonetic texts to his pupils.

Unfortunately, the number of such texts is very limited, and only one manual of Spanish phonetics, fortunately an entirely trustworthy one, is easily procurable. This is written by Sr. Navarro Tomás, under whose guidance teachers of Spanish are being continually trained in Madrid, so that we may hope for considerable developments in facilities for phonetic study in the future.

(3) **Reading Texts.** The teacher must remember that pupils beginning a second foreign language may, with profit, be given reading texts of a somewhat more advanced kind than was possible when they were beginning the first language: this both because the pupils themselves are more mature in years and because they are able to profit by the habits formed in their earlier linguistic studies. With children beginning Spanish at the age of 14, and having previously studied French or Latin for two years, it should not be impossible to start easy reading at once, and to proceed to annotated texts of definite literary value in the second year of instruction.

Pupils of less than average intelligence, and those studying Spanish as the first modern language, will naturally be given a more elementary reading-text, but while it is true that a reading-text if too difficult is apt to prove a stumbling-block instead of an aid and an interest, it is sometimes forgotten that a pupil of 14 or 15 (still more an adult pupil) has no longer the tastes in reading which he had at the age of 12. So much depends in language teaching on capturing the pupil's interest from the first, when he is working with no definite goal in sight, that the choice of the first text deserves more thought than it sometimes receives.

The great cities of Spain (Toledo, Salamanca, Granada, Sevilla, etc.) are so attractive to the pupil

of average interests and tastes that it is well to use at an early stage some book dealing with Spain, its cities and its people. Episodes of the history of the country are reflected in many historical novels, some of which, like Pérez Galdós' *Trafalgar* and Pereda's *Pedro Sánchez*, have been edited for school use. Plays of both the Classical and the Romantic period (such as *El Sí de las Niñas*, *El Trovador*, *Los Amantes de Teruel*) should not be beyond the powers of a quick class in its second, or an average class in its third year, and these, with a number of others, have been edited for schools.

There are, however, fewer available school-texts in Spanish than in French, and it must be seriously considered by the teacher whether he will not do well to accustom his pupils to the use of a dictionary (either unilingual or bilingual) at a comparatively early stage and introduce plain texts for rapid, or even for intensive, reading. Apart from the various series of such texts issued by English publishers an increasing number of Spanish publishers are bringing out small texts of convenient sizes and prices, many of which are admirably suited for school reading, and still more for the private student.

(4) **Adult Students.** Up to this point we have been considering primarily the learning of Spanish in schools. There are many students of the language, however, who take it up, whether for pleasure or profit, in later years, and who frequently, being unable to follow a two or three years' course, have to depend solely or partly on their own exertions. To such students much of what has been said in the foregoing paragraphs will be useful. They should be able to master a skeleton or outline grammar more quickly and use the knowledge they have gained more efficiently than boys and girls at school are capable of doing; but they will find the same qualities of clarity and conciseness essential in the grammar they use. They will need, too, some more definite notions of the pronunciation of Spanish than the ordinary grammar gives, and these they will best gain from a study, preferably under guidance, of Spanish Phonetics. As to reading texts, they will be in a position to begin a text of literary value earlier than the average student of school age, but they will hardly better those that have been mentioned in section 3 above. A few further indications, however, are added, as to more advanced study.

As to literature, the most attractive period is undoubtedly that of the *Siglo de Oro* or Golden Age, made famous for all time by the names of Cervantes, Lope de Vega and Calderón, but boasting also a company of lesser writers who have been as much overshadowed by these giants as our own minor Elizabethans have been by Shakespeare. The language of the sixteenth century in Spain is not so difficult as to make it impossible for capable students to begin their serious reading with Cervantes or Calderón, but a more advisable method is undoubtedly to read first a few of the great nineteenth century novels, e.g. Juan Valera's *Pepita Jiménez* or *Doña Luz*; the *José* of Palacio Valdés or the same writer's *Marta y María*; or possibly the *Dama Errante* of Pio Baroja with its entertaining sequel dealing with London life, *La Ciudad de la Niebla*. From such reading the student should emerge with a good general vocabulary, and he can then begin his studies of Classical or Romantic Spanish drama, or such difficult though entertaining

works as *Lazarillo del Tormes* or the *Celestina*, with far greater interest and advantage.

Those wishing for a more thorough understanding of the current and of the literary language will do well to study Bello-Cuervo, the best advanced grammar in existence. Menéndez Pidal's *Gramática Histórica Española* (4th edition, revised 1918) gives a thorough insight into the historical basis of the language; the best literary accompaniment is the same writer's monumental edition of that great Spanish epic, the *Cantar de Mio Cid* (3 vols, 1908).

Students wishing to keep abreast of the best original work in Spanish language and literature would do well to subscribe to the *Revista de filología española* or to the *Revue hispanique*, or to both. Articles on Spanish subjects also frequently appear in the organ of the Modern Humanities Research Association (*Modern Language Review*), in the *Revue de littérature comparée* and the American reviews, *Modern Philology*, *The Romanic Review*, and *Modern Language Notes*.

(5) **Study in Spain.** The degrees obtainable at Spanish Universities are not held in as high repute as are those of many other countries, and the prospective teacher of Spanish will do better to take an Honours degree in the subject at a British University or, failing that, the Certificate in Spanish which several of these Universities award. This does not mean, however, that residence in Spain is unnecessary; it is, on the contrary, essential to the serious teacher, and, quite rightly, indispensable for many posts. The *Junta para Ampliación de Estudios* (Secretarial office: Almagro 26, Madrid) is a body created by the Spanish Government for the purpose of enlarging the scope of Spanish studies, and those wishing to reside in Madrid will do well to obtain from the *Junta* particulars of its hostels, holiday courses for foreigners, publications, library, etc., before making their plans. Another centre, less important naturally than Madrid, but more pleasant in the summer, is the town of Santander, on the north coast of Spain. Here a holiday course is held every summer, and intellectual life is centring more and more round the important *Biblioteca Menéndez Pelayo*, a library bequeathed to the nation by the great scholar and critic whose name it bears.

E. ALLISON PEERS.

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#### SPANISH (COMMERCIAL), THE TEACHING OF.

—Every day attention is drawn to the increasing importance of the Spanish language as a commercial medium, and this is hardly surprising when we consider the vast extent of territory where this



harmonious tongue is spoken. Besides in its country of origin, Spanish is spoken all over the American continents (with the exception of the United States and Brazil), in the West Indies, and in a considerable portion of Africa; and it is the channel through which the greater part of the business transacted by Great Britain with the countries mentioned is conducted. The Spanish merchant, under which designation we include the merchant of the Spanish-speaking republics of America, is a very indifferent linguist, and prefers to conduct his business relations with foreign countries in his own tongue, which, apart from little differences of orthography, accent, and idiom, is to all intents and purposes the same, whether spoken in Madrid or in Peru.

The student of commercial Spanish, obviously, should become acquainted with the fundamental rules of the grammar before he devotes himself specially to the commercial part. A commercial grammar is an advantage, but it is not indispensable, as the student loses nothing by his acquaintance with the literary side of the language.

Very many words and expressions are in vogue which have a special commercial significance; hence the necessity for treating commercial Spanish as an almost distinct branch of the language. A person might possess a fairly good knowledge of Spanish, and yet, having no acquaintance with commercial or technical phraseology, be of little practical use in a mercantile house.

The teacher of commercial Spanish must be well versed in business routine, and be familiar with current expressions used in commerce. It is, of course, practically impossible for a teacher to be conversant with all the terms employed in every section of industry, and it would be unreasonable to exact so high a standard. Nevertheless, he should possess a good knowledge of the phraseology or technical names employed in the principal branches, such as textiles, hardware, and machinery, as well as of the names of the products which come from the republics of Latin America.

**Commercial Letters.** The translation of commercial letters is undoubtedly the most useful work for students of commercial Spanish, and, by commencing with simple specimens and then undertaking others of gradually increasing difficulty, the students become practised in the most general expressions, and their powers of turning English into Spanish rapidly improve. In this important work the teacher's aim should be to encourage the students to develop as much as possible their individual talents.

There is, however, nothing more tedious or monotonous than the system followed by many teachers of languages, namely, to give the students a number of letters in both languages, say Spanish and English, for translation, and to continue the same kind of work week by week, without any deviation from this dreary routine.

The students' minds should be constantly stimulated by change of occupation. It is far more profitable to take one or two letters during the hour, and to raise an interesting discussion on their main features or technical expressions, than to translate half-a-dozen letters hurriedly, without paying particular attention to the composition and grammatical structure of the work in hand.

It should be the constant aim of the teacher to test, as much as possible, the individual aptitude and originality of the students, and a spirit of friendly rivalry will have very beneficial results.

In this respect, the students should be trained to compose letters on matter supplied by the teacher, enlarging upon the theme at will. Work of this kind is a valuable training for the students' mental and epistolary powers, and cultivates self-reliance.

From time to time, letters or commercial passages should be dictated to the class in Spanish, in order to accustom the students to the sound of the spoken language. This is also an excellent spelling exercise.

As it is a difficult matter to compose letters *extempore* on all manner of commercial topics, the text-book becomes an almost indispensable aid to the study. The specimen letters of such a work should deal with a variety of subjects, commencing with announcements and circulars in reference to the establishment of business relations, and dealing successively with the various stages of development, viz., offers of services, travellers' visits, letters of introduction, asking information, inquiries, credits, execution of orders, complaints, shipping, finance, market reports, etc.

**Books and Newspapers.** In the choice of a text-book, the teacher should assure himself that it is up to date, and that the examples are real, living specimens of letters, not merely stilted forms such as would seldom be written in actual business. Practical utility should not be sacrificed in favour of academical accuracy. Many publications contain a very large number of letters which are of little use to commercial men, as they do not touch upon the kind of business for which the majority of students are shaping their studies. The text-book should also embody a good store of general information, and thus serve as a reliable reference.

A Commercial Reader is a very important addition, as it furnishes valuable material, and, almost unconsciously, the students using such a work get accustomed to Spanish phraseology and to the idiomatic niceties of the language. The reading should always be of an analytical character; manifestly it is more advantageous to read a little, and to study the structure of phrases and the meaning of technical words and expressions, than to read rapidly and carelessly, with the almost inevitable result that little or nothing is retained in the mind.

The perusal of Spanish newspapers is a profitable and entertaining form of study, as most newspapers contain matter which may be termed commercial. One is always sure that the language used in newspapers is quite modern; but, of course, only the best newspapers are recommended. Moreover, a newspaper gives one, frequently enough, an insight into the people's way of living and thinking, and such knowledge may prove a valuable asset.

**Conversation, Etc.** It is of paramount importance that the conversational side should not be neglected. In an advanced class, English should be spoken as little as possible. Conversations could easily be formed on the letters or other work of the class, or on a subject taken from the Commercial Reader. The teacher, for instance, could raise an important question, inviting the students to give their views. The conversation might be varied and made more interesting by the introduction of anecdotes or personal experiences. Sometimes a light topic of the day will prove the most successful theme, as the students may then feel more inclined to give expression to their opinions.

An alternative plan would be for the teacher to give, from time to time, short lectures or conversations in Spanish regarding different commercial



subjects. For example, if the teacher has travelled, he could give a description of some foreign town or land and the habits of its people. On the other hand, the students could be induced to compose short essays in Spanish on general topics, ranging from a holiday spent abroad to the description of their daily occupation or hobby. Another way would be for two students to assume the respective rôles of salesman and buyer, and to hold an imaginary conversation. Sometimes a controversial political question will be the best means of stimulating the conversational powers of diffident students.

Every encouragement should be offered to the students to ask questions, as pertinent inquiries are frequently the means by which the teacher opens, so to speak, his own store of knowledge, which might otherwise remain almost sealed to the class. The essential thing is that the knowledge of the teacher should be imparted as much as possible to the students, and this is conveniently done by constant and intelligent questioning.

The main principle which the teacher should ever bear in mind is the shaping of the student for a subsequent career, say, that of traveller, salesman, or correspondent. It will readily be recognized that the best preparation for such posts is that which combines useful conversational practice with the translation of mercantile letters and documents from one language into the other.

Anything in the nature of dull routine should be avoided. Variety and interest are the soul of language study. The work should be free and liberal, and not cramped or bound by convention. The teacher should be constantly endeavouring to vary the work, so that the students' interest does not flag. There ought to be scarcely any limitation to the range of the study. Let the students come to the class without knowing too definitely what the work or study is likely to consist of; thus their study will be made more pleasurable and they will be more eager to attend. The students should be trained to think and act for themselves, and the teacher should provide the stimulus and the necessary revision, guiding himself always by that sound Spanish proverb: *Obras son amores, y no buenas razones*.

G. R. M.

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#### SPANISH IN ENGLAND, THE STUDY OF.—

The close association of England with Spain is fixed by the discovery of America by Columbus (1492), for England soon became a competitor with Spain for the advantages from trade with America. The Spanish Court was at the height of its brilliancy in the time of Ferdinand and Isabella (reigned 1474–1504), almost 100 years before Queen Elizabeth in England. The Spanish Court then, in culture and learning, was second to none in Europe. Catharine of Aragon, the daughter of Ferdinand and Isabella, was married to Prince Arthur, son of Henry VII, in 1501, and to Henry VIII in 1509—living in England in the intervening years. As Queen Consort, in the years 1509–1529, she presided over a Court in which she carried forward the best traditions of her parents, so that these years may be said to be the Age of Queen Catharine, and form the preparatory culture to the great English Renaissance Age of Queen Elizabeth.

Many distinguished Englishmen visited Spain in Henry VIII's reign, including Lord Berners, Cuthbert Tunstall, and Sir Harry Guilford, who was knighted by Ferdinand in 1512 at Burgos. There were intermarriages between members of the English and Spanish Courts. For example, Lord Willoughby d'Eresby married the Spanish Maria de Salines (or Saluceo); William Blount (Lord Mountjoy), the pupil and friend of Erasmus and one of the foremost patrons of English scholarship, married, as second wife, Agnes de Vaneegas. Blount, moreover, was partly of Spanish ancestry, one of his ancestors having married a Spanish lady in the time of the Black Prince.

**English and Spanish Geographers.** The literary connection with Spain developed with that of the Court. It is, perhaps, most clearly seen, from the educational point of view, in the relation of English geographers with the previous Spanish historians of travel, voyages, and navigations. Richard Eden translated, in 1555, the *Decades of the New World* of Peter Martyr, and other geographical works published at Alcalá in 1518; and, in 1561, Eden translated the *Arte de Navegar* of Martín Cortés. Other translations from the Spanish were made by John Frampton, Edward Hellowes, Thomas Nicholls. In 1589, Richard Hakluyt published the first form of his *Principal Navigations*, and many of his narratives are taken from travellers who had written in Spanish. He also took the occasion to praise the naval and geographical education at the Contractation House or Exchange at Seville, and made his famous appeal for a similar geographical or naval college to be established for England near Ratcliff or elsewhere. Hakluyt stated that no one in Spain was placed in command of ships unless he had studied under a professor of navigation, and had satisfied the professor and other practical men that he understood navigation, theoretically and practically.

**Teachers and Text-books.** The effect of these inter-relations may be seen, educationally, by a commercial text-book, the *Merchant's ewizo*, published in London in 1589, and giving information on all questions of business, as well as commercial terms, of England and Spain. In 1569 the Ten Commandments appeared in London in Spanish. About 1578, Spanish was included in a book of colloquies or dialogues [in Flemish, French, Spanish, Italian with English]. But the first Spanish grammar appears to have been that published at Oxford in 1586 by Antonio de Corro, entitled *Reglas gramaticales para aprender la lengua española y francesa, confiriendo la una con la otra*; and, in 1590, this work was revised, translated into English, supplied with a dictionary of Spanish words, by John Thorius (whose father was a refugee in England from Flanders), and published in London. De Corro and John Thorius the younger had both been students at Oxford. Like the Huguenot Holyband, de Corro was a Protestant refugee and, like the Italian Florio, he had been the pastor of the Spanish refugees from the Inquisition in London, where Bishop Grindal had placed at their disposal, for their place of worship, one of his houses. Joined to the commercial tie between Spain and England of the Spanish Refugees was the common ground of Protestantism; and the earliest text-books in the sixteenth century for language-teaching, whether in French, Italian, or Spanish, are by religious refugees. In 1590, Thomas D'Oyley, of Magdalen College, Oxford, took out a licence for

a Spanish grammar. He included in it ("with the conference of native Spaniards") a dictionary of Spanish, Latin, and English, "with a multitude of Spanish words more than are contained in the 'Calepine' (*q.v.*) of ten languages." Richard Perceval incorporated D'Oyley's work and, in 1591, issued, in London, the *Bibliotheca Hispanica*, containing a grammar and dictionary in Spanish, English, and Latin.

It will be noticed that these Spanish text-books are distinguished by the employment of the comparative method of studying languages. In 1623, J. Minshew, probably a private-school teacher of languages, issued Perceval's work, dropping the Latin synonyms, showing, possibly, that the learning of Spanish was passing from pupils who had been taught classics to a commercial *clientèle*. In 1611, followed John Sanford's *Spanish Grammar*; and, in 1662, that of James Howell for travellers, due to interest in the Spanish peninsula, a consequence of the marriage of Charles II to Queen Catharine of Braganza. In 1704 was published Captain John Stevens's *Spanish Dictionary* and, in 1706, his *Grammar*. In 1719, a native of Seville, Felix Anthony de Alvarado, a naturalized Englishman connected with commercial activities, and translator of the English Liturgy into Spanish, is the first known Spaniard specializing in the work of teaching his language in England. In Morton's Dissenting Academy in the eighteenth century, Defoe was grounded in Spanish, as well as other modern languages. At Cambridge, in 1791, there is an isolated case, in the eighteenth century, of William Gooch, 2nd Wrangler, learning Spanish, but from Mr. Isola, the Italian tutor. The knowledge behind the interest in Spanish literature in the Elizabethan Age, behind the eighteenth century delight in Cervantes; and in the nineteenth century, behind Robert Southey's devotion to the *Cid*, was derived from private studies, not from educational institutions.

F. W.

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**SPARTA, EDUCATION IN.**—(See GREEK EDUCATION.)

#### SPECIAL CLASSES IN ENGLISH SCHOOLS.

The problem of dealing with old and backward children is being solved in an increasingly large number of elementary schools by the formation of one or two special classes. Children who are within two years of leaving school, and show no likelihood of getting higher than the middle of the school, are put together in one class. If the school be large enough to admit of another class being formed of the same type of child captured at a younger age, so much the better. The conditions of success in the formation of a class of this kind seem to be that it should not be given an unpopular name; that it should be smaller than the other classes; that the teacher should be selected for his sympathy and capacity to deal with backward children; that the syllabus of work should be appropriate; and that the class should in the case

of the younger children be a temporary training ground: the pupils, as soon as they are capable of taking up the ordinary work of the school, should be drafted to other classes. The term "appropriate" syllabus calls for explanation. The older method of dealing with these children was to set them to "grind" at the "three R's"—to give them more, in fact, of the mental pabulum which they had proved to be incapable of digesting. The present method is based on a recognition of their peculiar abilities. They form, as a rule, a manual rather than a bookish type; they express themselves better in practical activities than in academic work; they have tool-using rather than quill-driving proclivities; they learn by doing better than they learn by listening or by reading. Handwork, therefore, takes an important place in their education. It must not be inferred that these children do handwork better than normally intelligent children. Generally speaking, they do not. But they do handwork less badly than they do bookwork. And they are certainly more interested in it. Indeed in some instances, they show quite exceptional constructive ability. Manual occupations, therefore, figure largely in the curriculum. The kind of manual work done depends so largely upon the special circumstances, that the only general statement that can be made is that the things constructed are either beautiful or useful, or obviously (obviously to the pupil) lead up to something which is either beautiful or useful.

The preponderance of practical work necessarily means a curtailment of the academic work. The arithmetic syllabus is cut down so as to exclude all that is of merely theoretical value, that does not readily admit of practical illustration and proof, and that is not likely to be of use in after life. The love of literature is encouraged, and the memorizing of dull facts in geography and history discarded.

**Special Classes for Girls.** This kind of special class is just as necessary in girls' as in boys' schools. Indeed, such attempts as have been made in girls' schools have, if anything, proved the more successful. For it is easier in the case of girls to discover types of work which have a bearing upon actual life; home industries, for instance, such as the making of baskets, boxes, and satchels, all forms of needlecraft, bookbinding, picture-framing in *passee-partout*, and so forth. The care of the home and of babies, and the keeping of household accounts, are also manifestly appropriate.

**Special Classes in Secondary Schools.** Precisely the same difficulty appears in secondary schools. Here the staple of the curriculum is the study of languages—ancient and modern—and of the more abstract sciences, such as mathematics and physics. But a considerable proportion of the pupils have no aptitude in either of these directions. They take no interest in their studies, and make little or no progress. The school, in fact, attempts to cultivate specific abilities which they do not possess, while it neglects other abilities which they probably do possess. This fact is gradually being recognized, and in many schools provision is now made for special classes or sections of classes to be largely engaged in practical work. In boys' schools it generally takes the form of woodwork or metalwork, and in girls' schools of practical domestic science.

These classes provide for the retarded, the sub-normal, child. Why not have corresponding classes

for the super-normal child? The one great objection to such a course in the elementary school is the readiness with which the arrangement would lend itself to special coaching for scholarships. The aim of scholarship examinations in elementary schools, which is to select the children of the greatest natural ability as distinct from the children who can merely memorize readily, is thus defeated. Apart from this danger, there would be a distinct advantage in teaching the young and brilliant pupils in one class.

In secondary schools there is little likelihood that the brightest pupils, those that will bring credit and repute to the school, will be neglected.

In these special classes for sub-normal children in elementary schools, opportunity is given for the cultivation of individual bent, for one often finds there highly specialized abilities as distinct from general ability.

P. B. B.

**SPECIALIZATION.**—A specialized course of training is one in which the intensive study of a certain subject or group of subjects occupies a large proportion of the time devoted to the course. Specialized courses in our schools at the present day aim at providing either a definite type of liberal education, or a specific preparation for some calling or class of callings.

Of these two forms of specialization, the former is connected with a theory of education which originated in the eighteenth century. In the Middle Ages, a liberal education included the elements of all the chief branches of knowledge. It proved impossible, however, for education thus conceived to keep pace with the rapidly-growing complexity of the knowledge it was supposed to cover, and at the same time stress came to be laid upon the intellectual discipline derived from the study of certain subjects apart from the value of the information gained. The view won acceptance that a very limited curriculum would supply a complete mental training and a general preparation for later life, provided that the right subjects were chosen for intensive study. Thus the secondary schools were led to adopt a specialized classical curriculum. The same principle has been applied in a more or less modified form to the teaching of other subjects, and the senior boys and girls in schools which keep pupils until they are 18 or 19 years of age are generally given the opportunity of specializing in *e.g.* mathematics, natural science, history, or modern languages. (The method by which Entrance Scholarships are awarded at Oxford and Cambridge has been influential in perpetuating the system.) The educational theory upon which this form of specialization was originally based is, however, rarely accepted in its entirety, and the specialized curricula usually include certain subsidiary subjects.

**Specialization for a Vocation.** The second, vocational, form of specialization has been developed rather in response to social and economic influences than to any change in educational theory. The demand for technical skill and knowledge is growing more insistent in many occupations, and an appropriate specialized training has proved a valuable help towards providing efficient members for these callings. The realization of this fact has led to the organization of various types of technical schools, including junior technical schools and continuation schools and classes, as well as specialized vocational courses in secondary and primary schools and at the universities.

Experience has shown that, under suitable conditions, excellent results may be produced by both types of specialized instruction, and it can hardly be doubted that an extension of the facilities for vocational specialization would be of great advantage to the nation. On the other hand, the effectiveness of the specialized training given in the schools, has sometimes suffered from the lack of a clear conception of the educational principles involved and of the methods of instruction which should be adopted. The training provided has often been one-sided, and has, therefore, failed to fulfil even the limited purpose for which it was designed. The evidence of several witnesses before the Royal Commission on the Civil Service shows that, in the opinion of competent judges, the value of a sound general education for the future holders of important positions in industrial, commercial, and professional life is greater than that of a narrowly specialized training.

Further investigation and experience are needed before the limits within which specialization is desirable can be determined with precision, but in any case it is clear that a specialized course should always form a part of a wider training which does justice to interests other than those with which the specialized course is immediately concerned. Education should bring the learner into touch with all the great fields of human interest. This aim, however, can be accomplished in two ways. By means of a general curriculum, the learner's interests may be developed on more or less independent lines. Or some one interest may be given special prominence and other interests treated as subordinate elements in the system of this central interest. The latter method gives coherence to the training, and the strength of the central interest tends to impart a sense of reality and purpose to the whole of the boy's schoolwork. Thus, if the learner's interest is concentrated on his future calling, it is comparatively easy to bridge the gulf which too often divides the school from the world outside. For this reason, a specialized training for an occupation which the pupil will not enter may, under certain circumstances, prove a sound course of education. On the other hand, it is not possible as a rule to make the central interest comprehensive enough to serve as the focus of the whole curriculum. A general and a specialized course of training emphasize two different aspects of mental life. The former endeavours to do justice to its complexity, the latter to its underlying unity.

**Specialization in a Liberal Education.** A satisfactory synthesis of the two complementary points of view depends in detail upon the particular circumstances of individual cases; but, in principle, a specialized education may be made liberal in the truest sense, provided the right methods of instruction are adopted. It is here that specialized training has too often failed. Attention must be concentrated not upon details of purely technical importance, but upon the wider aspects of the subject, possessing a general human interest. Thus classics should be taught as "the great science of civilized man" (T. Arnold), not as a collection of linguistic niceties. Similarly, specialized vocational instruction should aim primarily at awakening an intelligent interest in the characteristic processes of the particular calling and an appreciation of the part played by the calling in the life of the community. The work done in the classroom or the laboratory should be in living contact with the interests and

problems of the corresponding field of human effort in the world outside. The study should not be merely academic. Thus a vocational course of training should have constant reference to the conditions actually obtaining in the calling.

If these principles are observed, there seems to be no reason why the advantages of specialized instruction should not be secured without sacrificing the paramount claims of a liberal education.

H. B. S.

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**SPECIALIST TEACHER.**—(See ASSISTANT TEACHER (CERTIFICATED); TEACHERS IN SECONDARY SCHOOLS.)

**SPEECH.**—(See VOCABULARY OF A CHILD, THE.)

**SPEECH DEFECTS.**—The faculty of speech may be considered from the point of view of content, or from the point of view of mechanism. For a long time it was held that an improvement in the content of speech led inevitably to an improvement in the mechanism. To a certain extent, this is true. The general level of educated speech is clearer, more musical, more articulate than that of uneducated speech. But there are two points of view from which training in the mechanism of speech is essential to good utterance. First, in correcting those faults due to local peculiarities. Second, in correcting those faults due to failure in any part of the physical apparatus of speech.

Faults of the first class improve where education is carried out in the larger and more established centres, such as the older universities and public schools; but there remains an uncertainty of standard and even, in certain cases, an element of provincial or personal peculiarity which may impose a serious educational handicap.

Faults of the second class are hardly affected by the standard of general education. This is especially marked in regard to defects of voice-tone, clergymen and teachers being conspicuous in this respect, and often suffering severe physical disability from their failure. In the more serious cases of speech-defect, such as stammering, lisping, and delayed baby-talk or lalling, we have cases where general education is hampered to a serious extent by the presence of a mechanical defect in utterance; while in all cases of speech defect, from whatever cause it may result, professional success is retarded and freedom of mental action in speech is impaired.

Speech defects of a more serious nature likely to hinder educational progress as a whole should receive special treatment individually, or in a "Speech Clinic."

**Stammering.** Of these, the most important is stammering, a nervous obsession due to fear, resulting in failure of the action of the floor of the chest—the diaphragm—at the instant of phonation (*i.e.*, at the instant when voice is made). This failure is complicated by the patient's attention being diverted from the content to the mechanism of speech, from the word to be spoken to the letter with which the word or syllable begins. Cure is attained through the removal of the fear-obsession, by treatment which is in the nature of suggestion, and by the removal of the habit through carefully

graduated exercises in respiration and voice. No attention should ever be drawn in the case of a stammerer to the practice of individual letters and sounds, as this increases the tendency to diversion of attention.

**Lisping.** Lisping in the more serious forms is sometimes called "neurotic lisping," and results from an overflow of muscular energy in the formation of certain sounds. It is treated by careful practice in muscular relaxation, and, like ordinary lisping, must be accompanied by exact practice in the formation of the defective letters. Lalling, or delayed baby-talk, is sometimes due to slight mental or nervous deficiency; at other times, only to neglect during the period of speech formation. After the age of 7 years it is difficult to cure, and needs careful articulatory practice, coupled with ear-training and exercises for the development of word faculty.

Medical conditions which re-act unfavourably upon speech are—

(a) Adenoids. Enlarged tonsils.

Nasal obstruction.

The removal of these under medical direction should be followed by re-education in speech.

(b) Faulty dentition. Deformity of the jaw.  
 Cleft palate.

After medical treatment, a limited degree of improvement may be obtained from speech-training.

(c) Bad chest development. Pigeon breast.  
 Depressed sternum.

Muscular rigidity  
 of the chest.

The physical exercises required for the improvement of these cases should, in every case, be directed towards the improvement of vocal tone. Purely gymnastic movements result in slower and less definite progress.

(d) Nervous and mental defects.

Not only do these re-act unfavourably upon speech, but definite and scientific voice-training presents one of the surest methods for obtaining improvement in the general condition of the patient.

In the report of a conference on speech-training in London schools and training colleges, issued by the London County Council in March, 1916, it is suggested that new and more scientific methods of training in speech should be applied in elementary and secondary schools and training colleges.

E. FOGERTY.

**SPELLING, THE TEACHING OF.**—It is by no means universally accepted that "he who reads much, spells well." It is more probably the case that good spelling depends chiefly upon the possession of a strong visual memory. Hence the importance in the initial stages of learning to spell of repeated transcription of short sentences, care being taken that new words are introduced gradually. This helps a child to obtain a correct visual memory of new words, so that he can reproduce them automatically when required, and is a valuable habit to acquire. The practice of writing words inaccurately spelt as a warning is to be deprecated; it is better to require the learner to look at a new word repeatedly in its correct form.

Since most children appear to learn spelling mainly through the visual memory and associated movements, oral spelling will not be of much use. It may, however, help the minority who learn through the associations of sound or even by mentally repeating the spelling of a word. It is

almost useless to set children to spell, simultaneously and orally, columns of isolated words they seldom use and do not write. Since spelling is mainly useful in writing, words which children need should be constantly written so as to accustom the children to their written appearance.

**Incidental Teaching.** In the initial stages of learning to read and write, spelling can be taught incidentally, and the teacher's ingenuity will suggest ways of lightening the burden for the young learner (e.g. the use of cardboard letters, word-building, strips of paper with words printed on them, coloured chalks, and differently coloured type). Locke advocated learning to spell by playing with pictures of animals with the names pasted below them, and Dr. Montessori shows us how quickly Italian children learn to spell by the varied and interesting indirect methods she adopts.

The phonetic method of teaching spelling is helpful, but owing to the unphonetic spelling of many English words it must be supplemented. Italian children, whose native language is almost purely phonetic, naturally have less difficulty with spelling.

**Use and Abuse of Spelling Lessons.** The use of the "Spelling Book" of olden days has largely disappeared: one of the best known was Mavor's, which appeared in 1770, with its words of many syllables in columns, and its lists of similar words with meanings attached (i.e. *ale*, a malt liquor; *ail*, to be sick; *hail*, frozen rain). Another in use in the last century was Dr. Butler's, arranged on a similar plan. A common plan in the 'seventies, was to set a certain number of these columns to be learnt at home every night, with the additional strain on the memory of the pupil being required to repeat them in order without the teacher giving out the words. Children whose memories were not naturally retentive found this a great burden, and the waste of time was appalling. It must be remembered, however, that there are some really good modern schools where "spelling lessons" are still given, and columns of words arranged on some common basis, or small spelling books, are effectually used. It seems certain, too, that correct spelling can be more rapidly acquired if the teacher makes use of certain simple rules (e.g. "i before e except after c," and the doubling of the final consonant when inflexions are added [*fit*—*fitted*; *cut*—*cutting*]). So long as such formal lessons are strictly subordinated to the more important ones where real thought is required, their occasional use should still be permitted. After all, as Dr. Hayward points out, it may be a pity such methods are necessary; but, so long as English spelling is what it is, teachers must accept their task, and must teach spelling in the most effective ways they can devise, provided that mechanical methods are employed in moderation. Again, who would deprive children of the joys of an occasional "Spelling-Bee," and the excitement attendant on standing in line and "talking places" in a spelling lesson? Writers on social life in rural America have made these contests, and the delight they bring, very real to English readers.

**Dictation**, though an excellent exercise properly used, has been greatly misused in the past. It is much more of a *test* than a *method* of teaching spelling. It should not be begun till the children can transcribe correctly simple words and sentences, and when first introduced it should consist of easy sentences with which the children are already

familiar. Some teachers do not permit their pupils to guess the spelling of a word, but require them to leave a space rather than write it incorrectly. The danger of this method, if continued after the initial stages, is that it encourages laziness, since little effort is required. Dictation exercises a child in retaining in the focus of consciousness words or phrases of increasing length sufficiently long to enable him to write them down from memory, and obviously requires considerable concentration of the attention. As an occasional exercise, it may be made, by a judicious teacher, one of the many indirect methods of teaching spelling; but its main use, so far as spelling is concerned, is to test the pupil's progress.

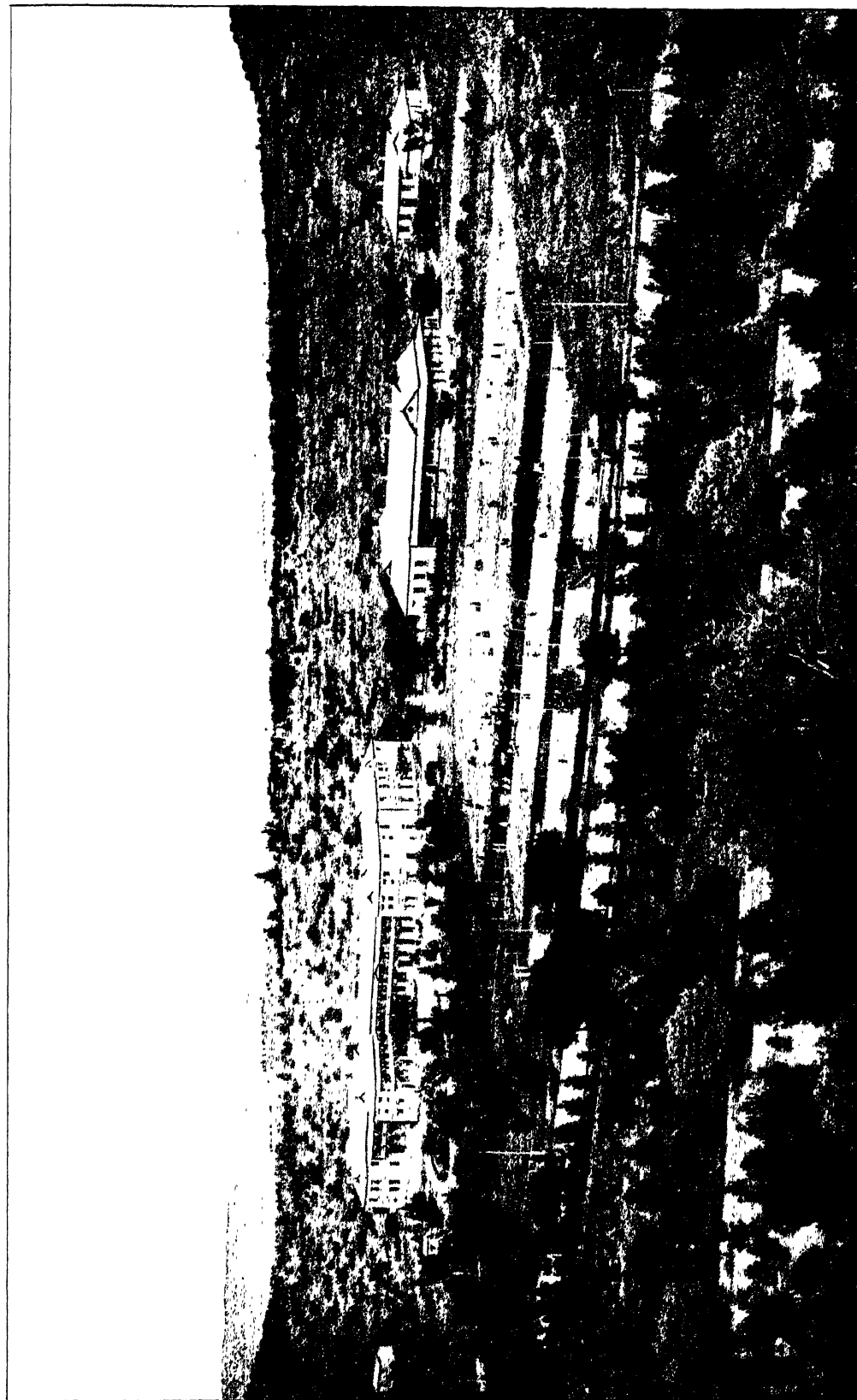
In spite of the care and ingenuity of teachers, there are still well-educated and cultivated people who have never acquired the useful though formal and mechanical art of correct spelling. Such have probably been the despair of their teachers, for it is not necessarily the careless, irresponsible boy who writes "seige" for *siege*, or "clift" for *cliff*—it is sometimes the over-anxious pupil who knows his own deficiencies perfectly and wishes to cure them. It has even been said that "bad spelling runs in families." With a purely formal art such as spelling, any variation from the conventional type is an error; and, since a man is often judged illiterate by his inability to spell correctly in the ordinary written intercourse of daily life, it is quite worth while for teachers to help their pupils to acquire the art in their early school days, for correct spelling is seldom acquired after the period of adolescence has begun. M. A. W.

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**SPELLING WHEEL, THE** (or Revolving Alphabet).—This was an invention of an American publisher, who produced it at Hartford in 1820. He called it a "Child's Instructive Toy." It consisted of two wooden discs about 5 ins. in diameter, with a circular sheet of paper between them. On one side of the paper were the letters of the alphabet, and on the other a number of short syllables. By turning a thumb piece, the discs were made to revolve, and through a small opening near the edge of the discs the printing could be seen, a short column at a time.

**SPENCER, HERBERT** (1820-1903).—Spencer's *Essay on Education* is the greatest claim ever advanced for an education exclusively scientific. To the question, "What knowledge is of most worth?" his answer is invariably, Science. When he wrote, science had practically no place in the curriculum of the schools, in spite of the great advance in scientific knowledge and its varied application to industry. It is unfortunate, however, that, in seeking to remedy the defect, he should adopt so extreme a view. The claims of Science to an important position in education are undoubted. His exposition of the imperative need of scientific instruction is eminently clear, and much of it meets with general assent; but, psychologist and sociologist though he was, he overlooked



*Granje Girls' School, Bloemfontein*

PLATE LXXXVII



the fact that man is the product both of his own powers and of his environment. The material world alone, however essential, does not satisfy: the spiritual needs must also be provided for. Human personality, with all those inner activities which it implies, is and ever will be vital. Not what a man knows, but what he is and does, is the deciding factor in life. Herein lies the claim of the Humanities, and Mill formed a truer estimate when he held that Literature and Science contain elements equally essential for education.

In the detailed treatment of the claims of Science, admirable though it is in many respects, Spencer shows a tendency to ignore certain important pedagogical considerations. Throughout he attaches too much importance to knowledge as such, too little to judgment and ability to utilize knowledge. That knowledge is necessarily power is a fallacy from which our educational system still suffers. Further, it is doubtful whether it is necessary or desirable for the majority of human beings to acquire much of the scientific knowledge which Spencer considers as essential. To take one of his own illustrations: The ruined shareholder who invested in the worthless coal-mine is to be blamed, not because of his ignorance of Geology, but rather for his want of judgment and common-sense in failing to consult the scientific expert, whose advice would have saved him from disaster. The training of the intelligence, not the mere acquisition of knowledge, is the chief aim of education. Another important fact which Spencer overlooks is that, however valuable any subject may be, it cannot be taught unless the mental development of the pupil is such as to enable him to comprehend it. There is no real study of science without a knowledge of general principles; and, as the power of abstract thought does not develop fully till the age of 15 or 16, science proper cannot be taught during the early years of school life.

**Views on Education other than Scientific.** The chapter on intellectual education contains many valuable suggestions. The importance of sense-training through object lessons, the right method of teaching drawing, the value of interest, and the need for cultivating self-development to the uttermost, are all matters which even yet are not fully realized.

In moral education, following Rousseau, Spencer is a firm believer in the "discipline of natural consequences," partly because it emphasizes the natural law of cause and effect, partly because it eliminates the personal element in authority, and hence removes any sense of injustice. The principle is thoroughly sound, but there are definite limitations which Spencer does not recognize. He would apply it universally, yet obviously some natural consequences are too severe to allow of their sanction; while, in the more serious moral offences, retribution does not follow with that certainty which constitutes its chief value. In this life, at any rate, evil does not always meet with its just reward.

His views on physical education are wholly admirable. The attention it receives to-day, especially as regards the education of girls, may justly be regarded as a proof of the soundness of Spencer's views enunciated more than half a century ago.

A. HENDERSON.

**SPENER, PHILIPP JAKOB** (1635-1705).—He was born in Alsace; educated at Strasburg and

Geneva; became pastor at Frankfort-on-Main in 1666. Impressed with the low state of piety in the Church and influenced by the teaching of the Reformed preacher, John de Labadie, he devoted himself to the work of rousing clergy and people to greater enthusiasm in religion. In his *Pious Desires*, he complains of the incomplete training of students before entering the universities, and the neglect of the study of Greek, theology, and the Scriptures. He preached regularly and systematically on the books of the Bible, freely reading passages during his sermons. The instruction of the young was to him an object of the highest importance, and for their benefit he introduced catechetical exercises based on Luther's smaller catechism. He acquired great skill in catechizing, and admonished teachers that instruction of youth was designed not so much to store the memory as to enlighten the understanding. For the assistance of other teachers, he published his *Catechetical Tables* in 1683. (See PIETISM.)

**SPENSER, THE EDUCATIONAL ASPECT OF EDMUND.**—Spenser himself, in the Introductory Letter to Sir Walter Raleigh which he prefixed to *The Faerie Queene*, has told us that the aim of his work was primarily educational: "The generall end, therefore, of all the booke is to fashion a gentleman or noble person in vertuous and gentle discipline"; and he says that he means to dedicate each of twelve books to the "twelve principal moral virtues as by Aristotle devised. Spenser's work appears, as a matter of fact, to have been suggested very largely by Castiglione's *Il Cortegiano* (q.v.).

The Renaissance conception of education differed considerably from the modern one: it did not so much concern the training of the child as the development of a complete character; it dealt with the whole formation of the man's mind and heart in adolescence and in maturity.

What Spenser does is to draw a picture of the ideal courtier as he and Castiglione understood the character; this courtier is a man of considerable learning, but not at all a pedant; he is a valiant soldier and capable of statesmanship; he is a man of the world and skilled in courtesy; he respects himself and others; he is reverent to women; he has also the great virtues of temperance, fortitude, and chastity.

Spenser teaches both by precept and example; the pattern of the perfect virtue of "magnanimity," which includes all the others, is laid before the reader in the person of Arthur; but each knight also illustrates some special virtue: the Red-Crosse Knight—Holiness, Guyon—Temperance, Britomart—Chastity, Cambel and Triamond—Friendship, Artegal—Justice, Calidore—Courtesy; and there is a fragment of a seventh book which deals with the virtue Spenser terms Constancy, which we should now call "Fortitude."

Spenser does not make the mistake of thinking that each virtue can be exhibited separately; what he does is to show his knights in such circumstances that in one the virtue of Holiness is the most essential, in another the virtue of Temperance, and so forth.

Thus, his Knight of Holiness must overcome Error and Sin, who are his principal antagonists, but he is also sorely tempted by different kinds of pride, spiritual and worldly; he yields to temptation and, realizing his degradation, is assailed by



Despair, and has to be restored by penance and humility; worked out in detail, all this is an allegory of the spiritual life of man as the great Puritans understood it.

**The Influence of Plato and Aristotle on Spenser.** Like many other Puritans, Spenser drew inspiration from Plato. His two first virtues are the two cardinal virtues of Plato: ἀνδρεία and σωφροσύνη. It is true that he interprets the former in a Christian sense; but it is also what Plato means by ἀνδρεία (i.e. the essential quality of manliness), what we should term "moral courage."

So, Temperance has really a Platonic rather than an Aristotelian sense: it represents the perfect poise and balance of the soul—the condition in which all temptations, whether to anger or to lust, can be and are restrained; Plato means by σωφροσύνη moderation in all things, in the passions of the mind and the desires of the heart no less than the pleasures of the body. Yet, in developing this particular virtue, Spenser has taken many hints from Aristotle, particularly the conception that each virtue is a mean between excess and defect; chastity is considered by Aristotle as a portion of the virtue of Temperance, and so also Spenser considers it in the sense of restraint of lust.

The legend of Chastity, however, deals with a far wider and nobler conception of the virtue. Here, again, the inspiration is mainly Platonic, the "noble love" that is a profound inspiration which exalts the whole level of the soul and lifts it above lower forms of temptation: it is neither the mediaeval virtue of asceticism nor the Aristotelian virtue of simple continence.

In the legend of Justice, Spenser really treats it not as a private virtue, but a public one; he follows Aristotle very closely in his conception, which is mainly practical.

In the virtue of Courtesy, Spenser deals with something which is not Greek, though it has affinities in Aristotle, but it includes more—a sort of innate reverence for the personality of others.

We may note, also, that the great Aristotelian virtue of Magnanimity is really interpreted by Spenser in a Christian sense; it is what the Middle Ages would have termed chivalry; it is generosity and heroic courage, combined with self-forgetfulness and sweetness of temper.

L. W.

**SPHYGMOGRAPH, THE.**—(See **PSYCHOLOGY (EXPERIMENTAL)**.)

**SPINAL CURVATURE (LATERAL) IN SCHOOL CHILDREN.**—What is meant by spinal curvature? Mothers bring their children, saying, "Her shoulder is growing out, doctor"; or, "She is always standing on one leg"; or, "He is always on one side."

In this article, stress is laid primarily on *lateral* spinal curvature. In the beginning there is merely a curve of position, the convex part of the curve above being compensated by the concave part below; there is no bony change. Although the case, at this stage, may be regarded as functional, and therefore entirely curable, yet, if the curved position is persisted in and left untreated, then it becomes structural, and, as such, incurable in the strict sense.

To realize the truth of this, the anatomy of the spine must be remembered. It consists of a series of bony segments, separated by softish elastic discs. Both bones and discs are capable of being worn down on one side or the other if the extra pressure continues, and hence a functional curve is likely

to become a structural one if the faulty position is allowed to remain unaltered. Practically, we pay dearly for the upright position, as, during the greater part of our time, pressure on the spine is being exerted by means of gravity; and, if this pressure is on one part more than another, it is obvious that all the forces are against the spine's getting better of itself. The ages at which spinal curvature tends to make its appearance are from 7 to 10 years. Cases resulting from rickets, infantile paralysis, and congenital causes are shown before 5, and therefore before school age. The number of girls affected, compared with boys, is roughly 7 to 1.

**Causes and Treatment.** The cause of lateral curvature in school children has been stated to be intimately connected with faulty positions of sitting for writing or reading, or of standing. Though these things may be contributory causes, it is doubtful if they can fairly be regarded as the root cause. Probably in some children there is some quality in the bones which makes them of less strength, and so less resisting to pressure. (In this connection, it may be noted that curvature of the spine and other bones is not unknown in other animals.) It is important that defects of sight and hearing should be noted and corrected; and conditions, both at home and at school, made as favourable as possible for the development of the children. There is no justification for placing every child in the same position, however perfect on purely scientific grounds that position may be. Every normal child has its own favourite position for doing its work, and that position it should be allowed to maintain.

In examining a child for spinal curvature, due attention must be paid to the general make of the child, whether slender or sturdy; noting its muscular development; the condition of the ankles; and any tendency to flat foot. It being determined, by careful looking at the child from both back and front, that there is a curve of the spine, the important question remains whether this is merely functional or structural. If functional, it will entirely disappear when both arms are raised above the head and the trunk is bent to a level with the hips. But, if the curve is structural, there will be some raising on one side or the other of the spine, showing that rotation has taken place. It is next important to test the flexibility of the spine. For this to be done effectually, the child must lie down flat on its face and raise itself on its arms. If the curvature is increased and there is any pain when the spine is bent, the case is probably one of quite another category than those considered here. The condition of the curvature having been determined, the treatment will be directed, first, to loosening the curved part of the spine so as to make the improved position possible; and, second, to strengthening the muscles to retain that improved position.

A very simple and effective way of treating purely functional cases is by raising the foot on the side of the lowered shoulder till the shoulders are on a level with each other. This can be done by having a thicker sole put on the shoe; as the child improves, the thickened sole can be lessened. This treatment was suggested by the late Owen Thomas, and has been found very successful. It should be combined with good general conditions. Structural cases must be treated with gymnastics, with or without apparatus.

J. WALKER.

**SPINOZA, BENEDICT.**—The son of a Spanish Jew, he was born at Amsterdam in 1632. He studied

physical sciences and the philosophy of Descartes, and left the Jewish communion in 1656. From that time, he supported himself by polishing lenses; and devoted his life to philosophical studies at Amsterdam, Leyden, and the Hague, refusing a professorship of philosophy at Heidelberg University; and dying poor in 1677. He wrote a treatise on the philosophy of Descartes (1663); *Ethica*, a complete system of philosophy demonstrating his own system (1662-65); and numerous works on kindred subjects. In Spinoza's system there was but one Substance, God or Nature, of which extension and thought are to be regarded as attributes. Everything in the mind is the *idea* or mental counterpart of something material, and everything material has a corresponding idea. The complete system of thought he calls "the infinite understanding of God." In his *Ethica* he contends that man has no free-will; will and liberty belong to God, and man is dependent on causes without and not within him.

#### SPIRITUAL NATURE IN EDUCATION, THE.—

"The true order of going, or being led by another, to what we love, is to use the beauties of earth as steps, along which we mount upwards for the sake of that other beauty." We must begin somehow by concrete acquaintance with a spiritual form of life. A baby with a good mother so begins in warm and tender experience of a beautiful human relationship. The child in a good school receives its special gift of corporate feeling and equal friendships. The boy or girl well taught anywhere should find the spirit somewhere in study; even the player of athletic games who has experienced the intense corporate life connected with them, the self-control, the endeavour after perfection, the intoxication of the fresh air and outdoor splendour, will hardly deny that something spiritual is to be found here. There are many different doors to "admiration, hope, and love." He who lives partly by these is already, so far, living in the spirit; and the fruits of the spirit, even in a young child, are joy, peace, temperance, and the rest.

Then, from such partial ideals and affections, we have to proceed, if possible, to the broadened conception and will that may shape and adjust the whole nature. All parts of education will help if they enable us better to grasp great thoughts and pursue enduring purposes; but we may speak specially here of religious education.

**Religious Education.** Religious education has always surrounded its central teaching with a body of suggestion and habit (another "beauty of earth") which we may sum up as Ritual. Its use is justified historically and psychologically, but its misuse is dangerous. We are apt to inculcate in children, with far too little adaptation, the practices and forms of worship used by their elders. The forms are generally too long for them, too monotonous, and too little intelligible; and childish misunderstanding and ennui, once thoroughly associated with any form or custom, are likely to set up for years effectual barriers against any real entrance of the spirit into that form. Progressive Sunday schools are making valuable experiments to try to obviate this danger, but much has yet to be done.

The general improvement of teaching should have effect also on direct religious instruction, and this should do much to smooth away those intellectual obstacles which come from misunderstanding. It is not to be hoped, however, that intellectual difficulties will not be met with at some period in

the growth of a thoughtful mind. In the partial re-interpretation by each generation of the deepest philosophy of the universe, some hardness and pain of re-birth are scarcely to be avoided. It is the right of the young to receive from their elders the utmost honesty of speech when they ask for it, and the utmost delicacy of treatment in any case. Some of us may remember how grateful we were at such a period simply for being let alone. Boys and girls of 14, or 15, or 18, may be admirably fitted in earnestness and real devoutness for such a rite as Confirmation or admission to Church membership, but any need for a statement of intellectual certainty may for some be a dreadful demand just then. The same fact makes it quite inadmissible, as many people think, to impose tests of belief upon young teachers. We could hardly do worse for a man's spiritual promise than hurry him to a decision which may mean (at that moment) a half-deception of himself, or a blunting of his spiritual honour. The demand "that he must believe what he has to teach" must be met by some other means. Incidentally, the freer choice of syllabus and treatment which would help to meet it would probably also contribute greatly to improve his teaching.

Eyes to see the true beauty, said Plato, are the final result of right living and right learning. We shall be less nervous and hurried the more we believe that the beauty is truly there to be seen, that the child or the youth has seen some of it already in his experiences of loyalty and love, and that to lead him to look further is, in fact, to enable him to see more. "Do you not see that in that communion he has hold, not of an image, but of a reality; and, bringing forth and educating true virtue, becomes the friend of God, and immortal so far as mortals may?" H. N. W.

#### SPORT, THE EDUCATIVE VALUE OF.—

Two essentially different views are held as to the part Sport should play in our educational system. It may be regarded simply as a means of exercising the body and keeping it healthy, a view held by those who think education should be practical—that is, should be designed to equip a man for acquiring wealth. The other view is that sport means far more than exercise to those whose bodies pulsate with vigorous young life, and that it is in itself a priceless instrument of education. It is a view generally held by those who estimate the success of a boy's education when he leaves school or college by what he is, rather than by the amount of information he has collected from books and lectures.

**Qualities Developed.** If games were purely hygienic, a sort of juvenile equivalent to the constitutional before dinner of later years, they should give place to Swedish drill or other mechanical exercises which are cheap and occupy little time. There are, however, good grounds on which we can justify the attention bestowed on games. English games are the outcome of our instinctive desire to manifest youthful strength in a way that is pleasurable and harmless. They have taken the place of fighting, and they demand most of the great fighting virtues. Only a brief mention can be made of a few of these virtues—

1. **COURAGE.** No game is ideal for boys that does not require courage; that is why lawn-tennis and billiards are less esteemed than cricket and football.

2. **ENDURANCE AND PATIENCE.** The body learns to accept moral control.

3. **MUSCULAR CONTROL.** The capacity to apply effort at the right time and place is to a great extent a natural gift, but it can be developed to a surprising degree in the majority of boys who are but moderately endowed by Nature. And, as a rule, these last derive more benefit from games than the natural athlete to whom success comes easily.

4. **CO-OPERATION AND UNSELFISHNESS.** These are the highest and most obvious virtues that a good "team" game promotes.

5. **INTELLIGENCE AND QUICK THINKING.** Few people realize how many boys have faculties developed by games that would have lain dormant without them. The difficulty with most boys is to make them think over their games. They study insufficiently the points of the game, and talk too much of results and individual achievements. The advantage of playing with a straight bat, the arrangement of a "scrum" of players of different aptitudes, present problems whose solution can convey notions of geometry and dynamics that some boys would never learn in the classroom.

Most games demand some of the above qualities. The best demand them all, and among these are cricket and football, which have therefore a high educational value.

**Effect on Character and Behaviour.** Consider now one or two results that come from participation in sport. The first that strikes a schoolmaster is that those who play games are easier to deal with, are better able to deal with others, and are more helpful members of a community than those who scorn them. The reason often given by superficial critics, or boys and undergraduates who have recently become conscious of their own intellectual powers, is that these games-loving boys belong to a conventional type which accepts certain traditions blindly and cannot think for itself. The truth is, rather, that, in games, boys absorb the idea of corporate action and the principle of give-and-take, which so often solves our social difficulties, while their minds are still immature and independent intellectual tastes have not manifested themselves. The philosophy revealed in phrases like "playing the game," "not a sporting thing to do," can be learned and expressed on the field earlier than in the pages of an essay.

A second result that comes from the physical pleasure provided by games must be noted. The average healthy male demands a certain amount of immediate satisfaction from the exercise of strength. Drill develops the physical powers, but provides no immediate fruit as the result of the effort such as comes from the accurate striking of a ball. The pleasure of hitting a half-volley with the maximum effect is a very real one, and gratifies desire in a most satisfactory way. Where the pleasurable element is not present as it is in games or, to a less degree, in various forms of manual labour, men will usually seek it in debauchery. The morals of foreign students and of soldiers in garrison towns are evidence of this. The tendency can even be seen in our own universities in the case of sports which, like rowing, partake of the nature of discipline rather than recreation. Boating men not infrequently celebrate the conclusion of a course of training by acts that assert too violently the animal nature of man.

**Some Evils.** There are evils that damage sport, and, on account of them, sport itself is often ignorantly attacked. Among the most prevalent

are professionalism, over-systematization, and advertisement.

Professionalism introduces the trading element and the business of life into games, which should be free from these things if they are to fulfil their functions perfectly. It has led to the wholesale introduction of paid labour in the preparation and practice of certain games, and to a precision in the playing of them and in the apparatus required that has made them too difficult and too disciplinary for the majority. Ball games have suffered greatly in this respect.

The advertising of results and records has been harmful to sport in its *role* of educator. Attention has been concentrated on results and individual achievements rather than on the practice of the sport. The pernicious effect of advertisement has been very marked in the case of mountaineering, and has been emphasized since this sport became popular among young men still at school or college.

But, if evils exist, they must not be allowed to obscure the benefits that sport confers. To sport we owe, in a measure that is too seldom realized, the adaptability and cheerfulness under difficulties, the respect for women, and the Christian fellowship that are so common among all classes and in all parts of the British Empire. R. L. G. I.

#### STAGE, TRAINING OF CHILDREN FOR THE.—

The actor's profession, Shakespeare's profession, now at last takes its rank as an entirely honourable calling. How far should children be allowed to enter it, and under what conditions? The records of the Blackfriars Theatre in Shakespeare's time show, at any rate, how popular the children were then. (See **COURT INFLUENCES**.) That many children can act, sing, and dance delightfully, is evident to all who know our elementary schools.

The education authorities are responsible for seeing that all children receive a good general education; and, in the large majority of cases, that education is in the elementary schools. The London authority is in the habit, when a parent is anxious that the child should be specially trained for the Stage, of allowing the child to go for a few hours each week for such training, having first made careful inquiries as to the suitability of the training school. This seems reasonable, as it keeps the child in touch with school life, which now includes some attention to the child's health; and the special speech training, voice production, and physical exercise, besides being of technical, is also of great general, value.

A fairly large number of children engaged in pantomimes are withdrawn from school during the "run," and special facilities provided for their education either at the theatre or in some special school. These arrangements want very careful watching, especially with a view to seeing that the children are not overworked; and that, at any rate, they get enough sleep, which is the one thing which many London children, quite apart from stage exigencies, do not get now. But with these safeguards, I believe the stage life is beneficial to the children; it brightens them and enlarges their outlook.

Then there are the children who go on tour to the principal English towns, or even abroad, in itself a liberal education of no small value. This training, however, owing to the magistrates who have to license the children not acting uniformly, is made

difficult. If arrangements could be made that the authorities, magisterial and educational, in the town from which the tour started were satisfied that proper arrangements were made for the education and general welfare of the children, it ought to be sufficient for the educational authority in the towns visited to see that these arrangements were carried out. Probably the number of children on tour at present is very small, and what is really going on is the technical education of young people over school age. Under the Fisher Act, however, eight hours a week of general education up to the age of 16 will have to be arranged. S. D. H.

**STANLEY OF ALDERLEY, LADY (HENRIETTA MARIA)** (1807-1895).—Lady Stanley's educational work was influenced by her knowledge of the world, and her keen love of politics and science. Her early years were spent in Florence, where her father, Viscount Dillon, resided. She was educated partly at home, and partly at a convent school, the society surrounding her giving her a glimpse into the politics of young Italy.

In 1826 she married Mr. Edward Stanley, who became Lord Stanley of Alderley in 1850 and inherited Alderley Park. At Alderley, Lady Stanley visited the parish girls' school and gave lessons. She introduced the "school portfolio" and the "log-book," afterwards adopted in all elementary schools in London, in consultation with Professor Huxley, who published a letter on the teaching of science. She gave school-lessons, and aided the Rev. F. Denison Maurice, of St. Peter's, Vere Street, in the establishment of his Girls' Home.

The claims of secondary education followed. In 1848 the Rev. F. D. Maurice (with others) took steps for the establishment of Queen's College, Harley Street. Lady Stanley gave her aid in obtaining its royal charter in 1853, the first formal public sanction in modern times to the principle that the education of women is not less important than that of men.

In 1861, and in 1886, she signed memorials to the University of Cambridge for the admission of girls to Junior and Senior Examinations, and the admission of women to university examinations and degrees. In 1887 she attended the presentation of a memorial to the Charity Commissioners towards placing women on the governing bodies of endowed schools, and also the presentation of an address of thanks to Lord Granville from 2,000 women on the opening of London University degrees. She contributed to the *Nineteenth Century* of August, 1879, an article entitled "Personal Recollections of Women's Education."

She was a vice-president of the London School of Medicine for Women—also of the Maria Grey Training College (*q.v.*), the Swanley Horticultural College, the Drawing Society, and the National Health Society; and she aided the Royal Art College (Queen Square), and the Girls' Club (Greek Street, Soho), belonging to her daughter, the Hon. Maude Stanley. The last twenty-five years of her life were devoted to three great objects: University teaching in London; Girton College, Cambridge (*q.v.*); and the Girls' Public Day School Trust (*q.v.*).

In 1876, on Mr. Goschen's invitation, she became an original member of the Society for the Extension of University Teaching.

She became a member of Girton College opened at Hitchin, with five students, in 1869. As it now

stands with its 160 students, it is a worthy monument of the principle held from the first that the university education of men and women should be identical. The founders went through years of anxious work before receiving large gifts of money from unexpected sources; and Lady Stanley gave liberally for the library, laboratory, and gardener's lodge. She was an influential member of Mrs. W. Grey's Union for the Higher Education of Women, also of the Council of the Girls' Public Day School Trust, attending meetings until her death. She gave various prizes for English essays, botany, etc. She paid visits both in London and the country, and her portrait hangs in many schools.

M. GURNEY.

**STAMMERING.**—(See NERVOUS DISEASES OF SCHOOL CHILDREN.)

**STANBRIDGE, JOHN.**—(See HOSPITAL SCHOOLS.)

**STATE INTERFERENCE IN EDUCATION, THE USEFULNESS OF.**—The advocates and opponents of State intervention in social problems never seem quite to appreciate the respective points of view of their adversaries. Yet it is not very useful to attempt to lay down as a general principle that State intervention is good or bad, as the case may be, and to neglect the considerations that have led disinterested thinkers to take a different view. It is quite possible for an intense individualist to welcome State interference on perfectly logical grounds while repudiating the whole conception of a Socialist State. On the other hand, it is equally possible for a thinker who is desirous of magnifying the power of the State, on the ground that the ultimate effect will improve both the individual and the State, to resent State interference in certain social problems. The subject of education vividly illustrates the need for tolerance in those questions. All true educational thinkers desire the same thing: a system of spiritual, moral, intellectual, and physical training that will enable each child born into the community to realize to the full his or her potential power for good—power that bad or indifferent training might transmute into power for evil. Now the question is: Can State interference substantially promote this universal aspiration? If the State by affording its assistance to education can raise the whole level of manhood and womanhood, then the opponent of State interference will probably feel that what he is opposed to is really a particular form of State interference, and not such interference in all and any circumstances. When we examine this position we suddenly find that the problem solves itself. State intervention or interference by a State which claims to be, as the German State claims to be, a non-moral body, merely acting on grounds of expediency without any outlook beyond the actual power of the State as a State—such State interference is almost certain to be evil in its ultimate results. In the case of Germany, the results, so far as education is concerned, have been very evil. The children in the schools have been taught to hate other nations, to have as their life's goal the increase at all costs of German power, to become efficient as part of a machine. The result has been very disastrous. The moral collapse of Germany was organized in the educational system. But if we have a State which exists, not for itself, but for the individual good of each of the multitude

of individuals that compose it, we have an entirely different position. We then have the deficiencies of the individual made good by the State; the imperfect *status* of the individual made perfect by the action of the State. In other words, if we have a State which exists for the good of the individual and not the reverse position—where the individual exists for the State—then State interference is in the highest interests of individualism, and unobjectionable even to the strict individualist. Unity is then power added to each individual.

**Papal Interference in the Middle Ages.** This position is well illustrated by the educational activities in the Middle Ages of what was, in fact, a State with almost universal authority—the Papacy. The Papacy superintended education throughout Europe. It was the ultimate authority, acting through the episcopate, in educational matters, and issued from the ninth century onwards orders that determined the organization of education, the licensing of teachers and so forth. On the whole, Papal influence in education was good, but the point now made is that, whether it was in fact good or not, it was in theory good and made for goodness, and would have been beyond criticism if it had acted solely in the interests of the children; if it had solely acted as a supplement to the imperfect capacity of childhood and parenthood, and so acted that every child obtained full and free opportunities of perfecting his or her personality.

It will be convenient to see how far this principle has been at play in the history of State intervention, as we know it in Europe and especially in England. The intervention of Charlemagne and his immediate successors in the ninth century—an intervention that created the parochial system of education and did not aim directly at the strengthening of the State as a State, but aimed at creating a better individualistic basis for society—was, so far as we can see, wholly good. It certainly stimulated papal intervention in educational matters throughout Europe, and gave new hope in the large slave class. With this interference we must rank, as directly derived from it, the interference in education of provincial church councils and episcopal control. No doubt, in some cases, throughout the Middle Ages such interference was carried too far, and prevented the creation of what were known as adulterine or independent schools—schools chiefly Lollard or Hussite in origin. Yet, on the other hand, the episcopal control secured for every school licensed teachers of a definite standard of capacity, and some uniformity in school books and methods of teaching. We may say that, on the whole, the mediaeval organization of education by an official of the bishop (known as the *Magister scholarum*) made for the efficiency of the individual and the internationalization of learning.

**State Interference before the Nineteenth Century.** Next consider the intervention of the State itself in education. Broadly speaking, such intervention up to the date of the French Revolution was twofold in character. On the one hand, the State added its authority to the authority of the Church in enforcing the educational policy of the Church; on the other hand, it interfered sporadically, as occasion seemed to demand, to correct educational abuses. We get also very occasional State intervention of a kind that was wholly evil—intervention, not in the interests of the children or the teachers or the Church, but as a supplement to

some particular State policy, with the intention of strengthening the State as a State. An excellent instance of this was the action of William the Conqueror when he imposed the exclusive use of the Norman-French tongue on the English grammar schools. The results seem to have been almost wholly evil during the three centuries that the rule persisted. It was not until after the Black Death (1349) that a tongue then entirely dead in England outside the schools and the Law Courts was abandoned in the schools. It is possible, however, that the use of two languages to some extent stimulated scholars in days when the Anglo-Norman dialects were still alive. This error was repeated in Ireland by the Tudors and in India in modern times. Another instance of improper State interference in education was the Conformity legislation of 1662. Nominally in support of the Church system of education, it was, in fact, used for purely political purposes. On the other hand, there were many instances of sporadic State interference in education that were wholly good. Thus in 1406 the statute of apprentices threw open all schools in the realm to all classes, thus emancipating the serfs; again, in 1571, Parliament incorporated the Universities of Oxford and Cambridge in order to secure “the maintenance of good and Godly literature, and the virtuous education of youth within either of the same universities”; again in Elizabeth’s reign, schoolmasters were freed from taxes, and schools and universities alike from taxes, tithes, and subsidies; and the administration of education was cleansed by statute from many abuses. On the whole, State interference in education in England up to 1833 justified itself; indeed, it was the absence of State intervention in the eighteenth century that was, to some extent, responsible for the darkest time in the history of English education.

**Modern State Interference.** What, then, shall we say of modern State interference in education? In France a State system sprang ready-armed with rod and book out of the teeming brain of the Revolution; and, though Napoleon’s *concordat* with the Pope left elementary education largely in the hands of the clergy, yet it was plain enough that this system of primary and secondary schools was doomed sooner or later to become, as it became a century later, an exclusively State system with no room for religion. After the disaster of Jena, Prussia took up State education as an instrument for re-creating the State. Both in France and Germany an exclusive State education has resulted, though more noticeably in Germany than in France, in loss of initiative and moral balance. The gain to the State in securing the intellectual training of every child has been balanced, and more than balanced, by the loss in national moral calibre. In England we did not take the plunge into a State system at the same time, or in the same way, or to the same extent as the Continental nations. A purely voluntary system organized by great societies attempted to educate an amazingly ignorant proletariat between 1798 and 1833. In the latter year, Parliament intervened in elementary education to the extent of making grants to the societies and exercising certain control as correlative to the grants. The problem was found to be a fearful one. The enormous increase of trade and industry, and the aggregation of vast populations in favourable industrial centres, filled educational thinkers with despair. Voluntary efforts,

even when organized by great societies with the assistance of a special State department, hardly touched the problem. In 1869, only two-fifths of the children of the working classes between 6 and 10 years, and one-third of the children between 10 and 12 years, were on the registers of the aided schools; while the proportion actually receiving education was much lower. Action was necessary, and so elementary education for all children was made compulsory, and the voluntary schools were supplemented by new schools maintained out of the rates. At the same time, the secondary schools and the universities were re-organized by statute. Out of the very necessities of the case, State interference has grown. To-day there are 6,000,000 children who are receiving some large measure of education through the combined influence of the State and the churches. The voluntary system still survives and reacts on, and is reacted on by, the State system; while easily accessible secondary schools and universities animate all education. The Education Act, 1918, created the machinery for co-ordinating all grades of education under a system of local schemes administered by the local education authorities created by the Education Act, 1902; took sound measures to secure the physical health of all school children; abolished child labour under the age of 12, and largely limited all labour by children in school attendance. The Act was the great charter of childhood in England, and the good effects of it are apparent on all sides. The usefulness of State interference cannot be denied, but it is not improbable as time goes on that it will be more and more restricted to the control of finance; while educational administration will be delegated to the joint efforts of the local authorities and the universities. The goal to be aimed at is the limitation of State interference to the work of supplementing the imperfect capacity of the individual. (See also BAINES, SIR EDWARD.)

J. E. G. DE M.

**STATICS, THE TEACHING OF.**—(See MECHANICS, THE TEACHING OF.)

**STATIONERS' SCHOOL.**—(See LONDON CITY COMPANIES AND EDUCATION, THE.)

**STATISTICAL METHOD IN RELATION TO EDUCATION.**—When the Legislature in 1870 adopted as a principle that it was the right of every child to have a good education, and that it was the function of the State to see that he had it, consequences which were not then foreseen were bound to follow. As time went on, it became apparent that some children were physically, and some mentally, unable to derive all the benefit of that education.

A starving or ill-nourished child, on the one hand; a feeble-minded child, on the other, are alike unqualified to profit by teaching in class. For the one, school meals, school clinics, nurses to watch over health and cleanliness; for the other, special schools have had to be provided; and, as a necessary consequence, exact information as to the condition and progress of children in schools has to be obtained. That exact information can only be afforded by the collection and judicious interpretation of statistics: one of the most trustworthy of sciences if rightly used, one of the most mischievous if misapplied.

**Incidental Work of the Teacher.** A certain amount of statistical record is necessarily incidental to the

work of every school. A register of the scholars and a record of their attendances, with some details of the work they do, will have to be kept. The register will also specify their ages, and by this means there will be easily obtainable particulars of the number of scholars of each sex at each age.

Rudimentary as these statistics are, there is one consideration which has its weight, even with regard to them, and which becomes more important when it is desired to proceed further with statistical inquiries. It is that the teachers, especially in elementary schools, are so overburdened with the requirements of the curriculum, that they have no time or inclination for work which they look upon as clerical, and are not disposed to undertake any inquiry that is not imposed upon them by the authority to which they are responsible. That authority itself is so convinced of the primary claims of the curriculum, that it will not look favourably upon any proposal to enforce statistical requirements upon the teaching staff.

What has to be done is to seek to convince the teachers and the education authorities that the statistical researches derived will be of real service to them in the discharge of their duties, and that whatever labour and expense is incurred in prosecuting them will be richly repaid to them by the results. When it is considered that a vast number of children may be kept under observation for several years in succession, it will be obvious that to note and record all biological facts connected with them must be of great interest and value.

**Anthropometric Statistics** are first in importance. The height and weight of each child should be recorded on entry into the school, and at definite times afterwards. Head dimensions should likewise be ascertained. So also tests of vital capacity and of grip, by means of the dynamometer or some other instrument, should be periodically observed. Eyesight is another faculty that should be tested by means of dotted cards, and cases of colour-blindness should be noted. (See MEDICAL INSPECTION OF SCHOOLS.)

The wide applicability of the statistical method to purposes of education will be understood when it is remembered that (according to a return prepared by the late Mr. Gray) the scholars in primary schools numbered 7,386,962, or more than 17 per cent. of the whole population of the United Kingdom. If those in secondary schools be added, this total will exceed 8,000,000, or nearly 20 per cent. Numbers such as these afford ample material for statistical inquiries.

A Committee of the British Association made a Report in 1902 on the proceedings taken in various schools for recording anthropometric statistics, from which it appears that at Radley School, measurements are periodically taken of height, weight, girth of chest when inflated, also, when normal, length of forearm and length of upper arm, for boys of each age. At Felsted School and Bootham School, York, similar measurements are taken; in the latter case, six times a year for each boy. At the King Alfred School, Hampstead, and at Marlborough College, even fuller statistics are collected.

For girls, a system of complete anthropometric examinations has been established at the North London Collegiate School. Mr. Legge, who was then the Inspector of Reformatory and Industrial Schools, and later became Director of Education for Liverpool, obtained height, weight, and chest

measurements of the boys and girls in those schools. For schools generally, the Committee were of opinion that a simple record of these facts was all that could be expected. (*Report of British Association*, 1902, pp. 484-489.)

**Interpretation of Statistics.** It is further to be observed that, even when periodical observations have been made, they do not at once reveal their significance. If a boy has grown one inch in a year, it does not appear from that fact alone whether his growth has been less or more than it ought to have been. Something in the nature of a standard rate of growth and the relation of the observed fact to that standard have to be ascertained. For this purpose, the mean or average of a great number of observations would have to be calculated.

Where a boy or girl shows an aptitude for calculations and statistics, might it not be practicable to train him or her to aid the master in the detail and clerical work that he sometimes finds irksome, and thus to promote the education of the pupil in a special line which he or she is fitted to follow? It is probable that in each school one or more pupils might be found possessing that aptitude, which is far from being a common faculty, or inheritable by all mankind. E. W. B.

**STATISTICS AND EDUCATIONAL EXPERIMENTS.**—The last twenty years have witnessed the introduction and increasing employment of accurate statistical methods in the experimental and observational study of educational problems. Wissler, Urban, Spearman, and Thorndike, to mention only a few prominent investigators, have applied the methods with which Karl Pearson and the Biometric School achieved brilliant results in the study of heredity and evolution to experimental psychology and education. The theory of correlation enables the investigator to supersede the vague generalities of Herbert Spencer by precise statements of association, which facilitate accurate comparisons of the results of experiments.

**Nature of a Frequency Distribution.** Let us consider for a moment the statement frequently made with regard to the homework in a particular form. We tell the parents that the homework in Form A should take "about two hours," and request them to inform the school authorities when that limit is seriously exceeded. Imagine a return made with regard to every boy in the Form, stating the average time spent by the boy on his homework. We can, from the return, make out a table showing that, out of the  $N$  boys in the form, there are  $n_1$  who spend under half-an-hour,  $n_2$  between half-an-hour and one hour, and so on, winding up with, say,  $n_8$  boys who habitually spend from three and a half to four hours on their homework. We may represent the frequencies  $n_1, n_2, \dots, n_8$  by rectangles on equal bases, and shall in general obtain a figure like Fig. 1, with the greatest (or *modal*) frequency in the neighbourhood of two hours. If this diagram be constructed with similar data on different occasions, the general features of its appearance will be retained, but there will be random variations in the heights of the individual rectangles. The theory of probability suggests a series of frequency curves, characteristic of the different types of distributions that occur in nature. Each such curve is determined by means of a small number of constants, a knowledge of which provides a satisfactory description of the distribution.

The best known of these is the so-called *normal curve* or curve of error, whose equation is

$$y = \frac{N}{\sqrt{2\pi}\sigma} e^{-\frac{1}{2} \frac{(x-\bar{x})^2}{\sigma^2}} \dots \dots (1)$$

The chief properties of the frequency curve are: (1) the total area under the curve is equal to the sum of the areas of the rectangles, i.e.  $N = n_1 + n_2 + n_3 + \dots$ ; (2) the area included between two ordinates  $MP, NQ$  measures the theoretical frequency with which values of the character we are measuring fall between  $OM$  and  $ON$ . We shall not discuss here frequency curves in general, but it is necessary for what follows to describe how the

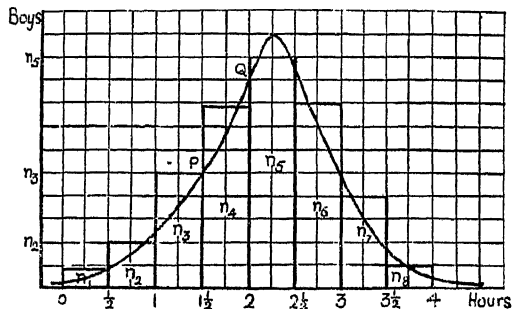


FIG. 1

constants of the normal curve are determined and to state the conditions satisfied by a normal distribution. Let  $x_1, x_2, x_3, \dots$  be the values of the measured character at the middle points of the bases of the rectangles. In our example,  $x_1 = \frac{1}{4}$ ,  $x_2 = \frac{3}{4}, \dots$  measured in hours. Then  $\bar{x}$  (the mean) is given by

$$N\bar{x} = n_1x_1 + n_2x_2 + n_3x_3 + \dots$$

the so-called *standard deviation*  $\sigma$  is given by

$$N\sigma^2 = N\mu_2 = \sum n_i(x_i - \bar{x})^2,$$

and is analogous to the radius of gyration in dynamics. The constant  $\mu_2$  is called the second moment coefficient about the mean, and the third and fourth moment coefficients are similarly defined by the equations

$$N\mu_3 = \sum n_i(x_i - \bar{x})^3 \text{ and } N\mu_4 = \sum n_i(x_i - \bar{x})^4.$$

The conditions to be satisfied for a normal distribution are  $\beta_1 = 0$  and  $\beta_2 = 3$ , where  $\beta_1 = \mu_3/\mu_2^{3/2}$  and  $\beta_2 = \mu_4/\mu_2^2$ . Much reasoning based on the assumption of normality of distribution is invalidated by the failure to calculate the constants  $\beta_1$  and  $\beta_2$ ; unless these have approximately their normal values, zero and three, the distribution is not normal.

**Correlation.** So far, we have been dealing with a single variable character. When we have to deal with two characters which admit of concomitant variation, we meet with a conception of the utmost importance in the statistical study of school experiments. This is the notion of *correlation*.

Where phenomena are connected by a physical law, as in the relation between the pressure and volume of a perfect gas at constant temperature, to each value of the pressure there corresponds one value of the volume. In statistics we find a dependence of a different character. We know that, in a



TABLE I.

A	$x$	B	$y$	$n_x$	$\bar{y}_x$	A	$x$	B	$y$	$n_x$	$\bar{y}_x$	A	$x$	B	$y$	$n_x$	$\bar{y}_x$				
1	549	10	243	6	242	21	399	18	231	18.5	213	40	348	13	239	12.5	212				
2	529	1	270			22	397	2	262			41	342	30	214						
3	525	37	205			22	397	42	197			42	340	30	214						
4	516	5	250			24	394	30	214			43	337	22	226						
5	514	2	262			25	392	22	226			44	320	33	211						
6	501	25	223			26	390	15	234			45	319	4	254						
7	455	35	208	3	229	27	382	35	208			46	318	53	173	4	202				
8	453	11	240			28	381	52	174			47	317	21	228						
9	451	11	240			29	376	26	222			48	315	44	193						
10	449	28	217	11	217	29	376	7	246			49	309	24	224	5	185				
						29	376	27	218			50	304	47	188						
						32	372	14	238			51	303	46	190						
						33	371	17	232			52	292	40	200						
11	435	40	200			34	369	54	170			53	291	19	230	4	202				
13	434	39	203			35	362	20	229			54	275	49	185						
14	429	34	210			36	361	55	164			55	263	44	193						
15	425	7	246			37	356	38	204			39	350	47	188	56	217	56	149	4	122
15	425	43	194			38	353	49	185							57	181	57	138		
17	418	9	244			39	350	47	188							58	104	58	102		
18	413	51	178			59	0	59	100												
19	410	6	247																		
20	403	16	233																		

[The entries 18.5 and 12.5 in the  $n_x$  columns should be noted. There were 11 boys whose  $x$  was between 450 and 400. There were 68 for whom the mark was between 400 and 350, and one whose mark was *exactly* 350. We credit .5 to the 400-350 group and .5 to the 350-300 group.]

sense, it is true that the heights of schoolboys increase with age; nevertheless, if the boys in a school are classified according to age, we find much variation of height among boys of the same age. The *correlation ratio*  $\eta$  and the *correlation coefficient*  $r$  are numerical measures of dependence or concomitant variation. Of these, the first is a positive constant, ranging from zero in the case of complete independence to unity in the case of functional dependence. The second has a range from -1 to +1, being negative when an increase in one variable is on the whole accompanied by a decrease in the other. This constant  $r$  is of use only when the distribution satisfies a condition we shall describe later known as *linear regression*. The definition and calculation of these constants will be made clear by a numerical example.

**Calculation of Correlation Ratio and Coefficient.** In Table I, the columns headed  $x$  and  $y$  contain the marks received by each of fifty-nine candidates in a certain examination,  $x$  being the marks awarded for "school subjects" and  $y$  for "workshop subjects."

The mean mark for "workshop subjects" is  $\bar{y} = 12423/59 = 210.56$ , or, say, 211 to the nearest integer; similarly the mean "school subjects" mark is 370. The standard deviation of the workshop mark is given by

$$\sigma_y^2 = \{(243-211)^2 + (270-211)^2 + \dots + (102-211)^2 + (100-211)^2\} \div 59 = 1195.4; \therefore \sigma_y = 34.6.$$

The candidates are arranged in order of merit as regards the "school" mark, and at first sight their "workshop" order appears to be haphazard.

But the column headed  $\bar{y}_x$  gives the mean "workshop" marks for the boys arrayed in groups, commencing with a group of six boys whose school mark was between 550 and 500, and ending with a group of four for whom it was below 250. The regularity of these means of  $y$  in what are called the " $x$  arrays" is sufficiently striking. The *correlation ratio*  $\eta$  is defined by the equation

$$\eta^2 = \Sigma n_x (\bar{y}_x - \bar{y})^2 / N \sigma_y^2,$$

where  $n_x$  is the population of an " $x$  array,"  $\bar{y}$  the mean of  $y$  for the whole population,  $\bar{y}_x$  the mean for the array, and  $\sigma_y$  the standard deviation for the whole population  $N$ .

In our example,

$$\begin{aligned} \eta^2 &= \{6(242-211)^2 + 3(229-211)^2 + 11(217-211)^2 \\ &\quad + 18.5(213-211)^2 \\ &\quad + 12.5(212-211)^2 + 4(202-211)^2 \\ &\quad + 4(122-211)^2\} \div 59 \times 1195.4 \\ &= .5562. \end{aligned}$$

So that  $\eta = .75$  nearly.

A consideration of Table I and the definition of  $\eta$  will show that if there were no dependence, there would be no reason why there should be any (but small random) differences between the means  $\bar{y}_x$  and the general mean  $\bar{y}$  (i.e. theoretically  $\eta^2$  would be zero). On the other hand, in a case of functional dependence, the numerator of  $\eta^2$  would become  $N \sigma_y^2$  and  $\eta^2$  would = 1.

The middle points of the  $x$  groups are at 525, 475, and so on. If we erect ordinates  $y_x = 242, 229$  and so on, at these values of  $x$ , we get the *Regression Curve* of  $y$  on  $x$ . In a very important class of cases this regression curve is approximately a straight line. In such cases, the correlation ratio  $\eta$



(which is essentially positive) is numerically equal to the *correlation coefficient*  $r$  (which is positive when  $x$  and  $y$  on the whole increase together and negative when  $y$  decreases as  $x$  increases).

This correlation coefficient is defined by the equation

$$r_{xy} = \frac{\Sigma(x - \bar{x})(y - \bar{y})}{N\sigma_x\sigma_y}$$

$\bar{y}$  and  $\sigma_y$  have already been found. Similarly we find  $\bar{x} = 370$ ,  $\sigma_x = 94.7$ , while

$$r_{xy} = \frac{\Sigma(x - \bar{x})(y - \bar{y})}{N}$$

$$(549-370)(243-211) + \dots + (104-370)(102-211) + (0-370)(100-211) \\ = 2334.22;$$

$$\text{so that } r = \frac{2334.22}{94.7 \times 34.6} = .71^*$$

[\* $\eta$  is always greater than  $r$ . The difference  $\eta^2 - r^2$  is used as a measure of the departure from linear regression. Here  $\eta^2 - r^2 = .5562$   
 $-.5041 = .052$ .]

Psychologists have calculated  $r$  more frequently than  $\eta$ , but it is important to note that the value of  $\eta$  is always significant, while that of  $r$  may be very misleading if the regression is not linear.

Spearman has proposed a method for calculating the correlation when only the ranks (or order of merit) in the two characters are given. His proposal is to calculate the correlation between the entries in our columns A and B.

$$\text{This leads to the formula } \rho = 1 - \frac{6S(d^2)}{N(N^2-1)},$$

where  $S(d^2)$  is the sum of the squares of the differences in rank. Pearson has shown that this formula is always incorrect, but that in the case of *normal distributions* the correct value of  $r$  can be deduced from

$$r = 2 \sin \left( \frac{\pi \rho}{6} \right)$$

In our example,  $\beta_1$  and  $\beta_2$  for the  $x$ 's are .966 and .557 respectively; while  $\beta_1$ ,  $\beta_2$  for the  $y$ 's are 1.408 and 3.654, as compared with the normal values,  $\beta_1 = 0$ ,  $\beta_2 = 3$ . Thus the distributions are very far from normal.

As a matter of fact, Spearman's formula gives

$$\rho = 1 - \frac{6(17069)}{59(59^2-1)} = .5012.$$

So that Pearson's Formula yields  $r = .5189$ , or, say, .52, which is a very poor approximation to the correct value, which we have already shown to be .71. L. I.

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**STATUS OF THE TEACHER, THE.**—Education has always been the Cinderella of the professions. From the days of Goldsmith, when to dress hair and lie three in a bed were among the duties of a boarding-school usher, until now, the teacher has almost invariably failed to secure due recognition.

The pupil has been praised for brilliancy times without number, when it was the patience, endurance, industry, sympathy, and enthusiasm of the teacher which inspired that brilliancy. Gratitude has never been a conspicuous public virtue. It may be no better in the future; but experience and common sense are working changes which ensure that in the days to come the teacher shall take his or her place as an appreciated essential asset in the spiritual and educational welfare of the race.

The last twenty years have brought many improvements to the practice and profession of teaching. Organization and co-ordination have had their due effect; but all the efforts of the administrators for the development of education and the cultivation of minds would be miserable in result without the personal influence of the men and women who teach. No amount of office-work can afford to dispense with that. The "authorities"—that power which stands for so much and may mean so little—can build and improve the machine to the very edge of perfection, but, without the sympathy, skill, and enterprise of the teachers, trained to exert and stimulate the minds of their charges, that machine must remain a mere fact of mechanism, as impotent as any unquickened power.

**The Policy of "Drift."**—And yet the State has never taken due regard of the proper selection and provision of the teachers. In all branches of education it has been the same. The supply has been often haphazard. The best have frequently not been chosen; though, considering the want of system in the choice, how much worse it might have been! In elementary schools, the teacher has generally sprung from the pupils themselves; too often not because of any particular educational bent, but as a matter of drift, just as the child might otherwise have been passed into retail trade or millinery. The tendency, being towards self-improvement, has, on the whole, been laudable; but it does not make for education, if education is to be more than a concern of the three "R's" and some degree of discipline. In secondary schools there has been an extraordinary improvement in recent years, thanks to more efficient Government and County Council inspection; but there are still in these schools, which carry on the practical education of the more serious students, a large number of teachers who would have failed in anything else. A continuance of the present tendency will, however, cure that. The so-called private school has been greatly influenced by the public-school spirit; the defect of the public school teacher is the defect of the system—if, indeed, it is a defect, which is rather a disputable point—that the playing-fields have been considered as equally important with the classroom; and the requirement in a teacher not only, "How is he for scholarship?" but: "Is he a gentleman, and can he bowl?" as well.

In all the divisions of the teaching world, drift or some consideration foreign to the best interests of education has ruled the selection of the teacher. All was perhaps well enough while England could afford to be go-as-you-please. But now things have changed. Our place among the nations has been challenged, and there is not an ounce of prudence or wisdom to spare if the well-being of the imperial commonwealth is not to be jeopardized. The old British tendency of trusting (somewhat unconsciously) to Providence; of going gaily, confidently, and therefore successfully, on to new adventures, and winning through grit and against reason, will

doubtless remain; but, unless it is supplemented with more purpose and intelligence than have hitherto been employed, we cannot expect to continue to enjoy the ascendancy which is and has been our satisfaction and our pride. Let us not lose the lessons taught by Teutonic thoroughness before the War. The Germans brought brains and methods into their systems of State to such an extent that they produced a machine as perfect as could be—with the essential human element left out. They erred in making the machine everything, and have suffered in consequence the crash which, indeed, is inevitable when mechanical efficiency is specialized to an extravagant degree and the moral element is lost. We have erred at one, and they at the other, extreme. Humanity, individuality, in some respects initiative, have been crushed in their process of moulding to a pattern. We have retained initiative and individuality at some cost. The British temperament could not react to such pressure as the over-disciplined Teutons permit. The very independence and "cussedness" which are our national characteristics almost lead us to prefer the risk of some sort of ruin.

**The Teacher of the Future.** It is the teacher who will safeguard the future. Better organization of educational forces there must be, and a Government lead; but the call is chiefly for persons and not for machines. Therefore the men and women to whom the task of educating the young is to be entrusted must be no haphazard human ventures, no "fools of the family," no mere "wet-bobs" or "dry-bobs," no complacent commercial *entrepreneurs*. They must be educationists born and trained, with energy and enthusiasm, keen, realizing not only the immediate duty, but the actual imperial responsibility which rests on their shoulders. That this is no sort of "bottled moonshine" is proved by the numbers of excellent, suitably qualified teachers now serving in the schools—elementary, secondary, and public—and by the fact, proved again and again, that England has never failed for the right service when the call has been insistent and unmistakable and rendered decently worth while.

But we must pay for it. The chief cause of past weakness has been inadequate salaries. Great responsibility has been given with a journeyman's wage. Except for the plums of the profession, certain rich head masterships, house masterships, and specialists' posts, in no grade has the teacher been paid enough; and even among public school masters, it is impossible for any but the few to marry. They cannot afford it. So with superannuation—at the other extreme. The pension of the head master of a council school in the country has been less than that of the village policeman. The State must realize that such devoted work as is, and will be, called for from the teacher must be paid for, if not generously, at least justly.

The status of the teacher at the present time is indeterminate, at best. He or she may win, here and there, a deep personal affection or social regard, but it is not reflected in any kind of public consideration. Yet the future of the nation and the Empire is in the hands of the teachers.

And what a privilege that will prove! It is to be no jog-trot system of education, no curriculum ordered for stay-at-home purposes that the teachers must justify. It will be more than the satisfaction of a necessary minimum, or the provision of such smattering as the large majority of pupils

have had to be content with. New times call for new studies, or the old subjects differently treated. Citizenship must be more taught: its principles, history, responsibilities; and imperial citizenship, too. The new patriotism is no mere chapter of mysticism. It is a practical fact. Our commerce is bound up with it; so are liberty and right-doing. Every department of education, from the village school to the university, must be guided to definite ends, so that, in the practical as well as in the aesthetic world, the British people may make the best of their great abilities, and safeguard the ideas and interests expressed in their civilization. The Government through its Education Department must lead and order; but it is the teacher who will *do*; and, in this new vogue, education will become honoured and appreciated—as it has always been in Scotland—and the teacher will be honoured too.

C. E. L.

**STEREOSCOPE.**—An instrument invented by Wheatstone, and consisting of two mirrors so arranged as to reflect to each eye the particular view of the object which belonged to it, and at the same time to make these views coalesce. In the familiar "lenticular" stereoscope, invented by Brewster, two pictures of the object are placed in the focus of a divided lens, arranged so that the rays enter the eyes as if they came from one picture, and produce the impression of solidity or relief.

**STEVENS, ALFRED.**—(See FINE ARTS AND THEIR INTER-RELATIONS, THE.)

**STIMULUS AND RESPONSE.**—Here is another instance of that polarity which is universally persistent, and invariably shows itself in some form of action and reaction. Psychologically, this duality is immediately noticeable in the mind processes of *knowing*, but is also uniformly active in the mentality of *feeling* and *willing*: the same duality is ever present in all emotional activities, and in all that appertains to conduct and character.

**Knowing.** Consciousness given, sense-stimulus is the necessary condition: at the origin, as well as in process. The response in elemental knowing is sensory, while the sensory element itself is then the immediate stimulus of motor response: the winking of the eye in bright light or the movement of hand and limb against physical irritant may illustrate. In later progress, mental flux is repeated stimulus and response.

**Feeling.** But pleasure and pain are elemental, and spring at once from sense-stimulus: and again appear progressively and in progressive complexity from mental as well as physical excitations. Fear, hate, love—each resultant from complex stimulus and each stimulant of further complex response.

**Willing.** The earliest motor activities are the root of later, and these again of the last and finest developments of conduct. SUGGESTION and Imitation may be regarded as stimulus and response in highest exercise. The sensory or motor stimulus has its motor response: in progressive elaboration the elementary aspects of feeling and willing are interwoven, and the full mentality is but continuous stimulus and response in infinite rapidity and variety.

A. E. L.

**STOCKWELL TRAINING COLLEGE.**—This College was founded by the British and Foreign School

Society in 1859, the foundation-stone being laid by Lord Granville. It was opened in 1861 by Lord John Russell. In 1843 the Society had admitted twenty women students into the Borough Road Training College, and from that time the number had increased until it was considered desirable to establish a separate college for them. Seventy-five students were transferred to Stockwell in 1861, and in the next year a hundred were in residence. New practising schools were erected, and in 1864 a kindergarten school was added. Enlargements in 1884 raised the accommodation to about 150. Associated with the establishment and the early success of the College were Mr. E. D. J. Wilks; Mr. Bourne, who was general superintendent until his death in 1907; and Mrs. McRae. The last-named had been, as Miss Springman, a monitor-general on the girls' side under Joseph Lancaster, and afterwards on the staff at Borough Road. She resigned in 1861, and was succeeded as chief mistress by Miss Scott, who held that position till 1866. Miss Steele was the chief resident officer from 1866 to 1883, and acquired a great reputation among Stockwell students for her work during these years. She left in 1883 to carry out similar duties at Saffron Walden Training College; and was succeeded at Stockwell by Miss Manley, who took the title of vice-principal in 1890 and that of principal in 1892. After Miss Manley's death in 1911, Miss S. E. S. Richards, M.A., became principal.

The staff at Stockwell includes graduates of Oxford, Cambridge, and other universities, most of whom devote all their time to the work of the College. The course of training provided is aimed at producing the best equipped teachers, and includes the preparation of matriculated students for university examinations, and others for the Board of Education certificate. Courses have also been taken for the higher Froebel certificate.

The College has always been undenominational, and has admitted students of all denominations without experiencing any "religious difficulty."

The practising schools attached to the College include three departments—Senior, Junior, and Infants—in which some 700 children afford practice for the students in teaching and school management. Many social societies have been established in connection with the life of the students, including an Old Students' Association with seven provincial branches.

**STOICS, THE.**—These were followers of the Athenian philosopher Zeno, who, in the fourth century B.C., used to teach in the Painted Stoa, or Porch, in Athens. The school of Zeno was opposed to the Epicureans, and to the doctrine that the chief good was pleasure. Zeno taught that virtue was the chief good, and until the beginning of the Christian Era, the majority of thinking men in the Roman Empire gave allegiance to either the Epicurean or the Stoic philosophy. The Stoics held that the best life was a life according to Nature, and set a high value on a knowledge of the universal order in which a Divine Providence assigns to each human being a place. The true secret of a happy life is the devout and cheerful acceptance of the destiny assigned to us by Providence, or Destiny. The Stoics claimed to be "citizens of the world," and to them the world was a commonwealth under the sovereignty of God, wherein every man must subject his private interests to the general good. Stoic philosophy took a strong hold on the Romans,

and Rome in the first century A.D. produced the three most famous Stoic writers, Seneca, Epictetus, and Marcus Aurelius.

**STONYHURST COLLEGE.**—The public school now called Stonyhurst College was originally founded abroad to provide an education for English Romanists at a time when the penal laws made it impossible for such teaching to be carried on at home. It was founded by Father Robert Parsons in 1592 at St. Omer, where, under the guidance of the Jesuit Fathers, it did its work until 1762, when the Bourbon Government suppressed it and it found an asylum at Bruges. Thence in 1773 it was driven to Liège, where it remained until the French revolutionary armies forced it to seek refuge elsewhere. Mr. Thomas Weld of Lulworth offered the College a home at Stonyhurst, the ancestral hall of the Shireburnes in Ribblesdale, on the slope of the Longridge Fells, which had come into the possession of his family by marriage, and thither the eighteen teaching fathers removed in 1794. The fine old Elizabethan mansion, which dated from 1594, was restored, but proved inadequate to accommodate the many pupils who crowded to the school. In 1810 a new building, four storeys high and 300 ft. long, was erected; the chapel was built in 1835; and between 1877 and 1899 an entirely new college was set up, with a central block 280 ft. in length flanked by wings each 100 ft. long, and with its elevation broken and relieved by towers. The College library contains more than 40,000 volumes, including many illuminated MSS., black-letter books, and incunabula. Other smaller libraries are provided for pupils of different requirements. The Observatory is an institution of national importance. There are fully-equipped chemical and physical laboratories and a carpenter's workshop. Cricket and football are compulsory; and, besides racquet courts and a gymnasium, there is a golf course for the seniors; indoor games are provided for, and there are large reading-rooms. The O.T.C. is carried on successfully.

There are about 400 boys and from twenty-five to thirty professors and masters. The boys are divided into Preparatory Division, Lower Line, Higher Line, and Philosophers. The classes bear traditional names: elements, figures, poetry, grammar, etc. There is a preparatory school at Hodder House for forty or fifty boys, many of whom are educated with a view to the Navy entrance examination. The lower course in the College is a preparation for the Oxford and Cambridge higher leaving certificates: till 1896, the London Matriculation was the standard worked to. The higher course aims at the universities and professions, providing to a large extent the teaching of a university college in such subjects as English philosophy, political economy, Roman and English law, besides the usual classics, mathematics, science, and languages. The examinations for London degrees are frequently taken by senior students; the first year of the five years' medical curriculum prescribed by the Conjoint Board may also be spent at Stonyhurst. The great difference between life at the ordinary English public schools and at Stonyhurst is the amount of religious training and devotional exercise at the latter, together with more direct supervision than the ordinary English schoolboy usually gets.

**STORY-TELLING TO CHILDREN.**—The ballad singer was an educator. His audience learned to

listen to the spoken word and to remember—powers that have been somewhat lost in this period of many books.

Thus one of the educational advantages of story-telling to children is the cultivation of attention and memory. Reading aloud furthers this, but not to the extent that story-telling does; for the story-teller, with her freedom to use eyes, hands, and body in expressing ideas, holds the child's mind more completely. Right listening means good memory; and so, through story-telling, a child has his intellectual horizon marvellously widened. He gains not only the actual facts of the stories, but new thoughts; new phrases; new words; new ideas of form, colour, sound, and action. He acquires a sense of literary form and unconsciously a taste for what is well-expressed. His imagination, too, is stimulated in a practical way, since stories add to the resources of the child—many busy and joyful hours, impersonating brave heroes and fair maidens, come from storyland. The child begins to have a sense of humour and of pathos, and an understanding of cardinal virtues that precepts fail to teach. A story is often far better than a sermon or a scolding.

Perhaps the strongest appeal for the story is the love all children feel for story-tellers. A mother may work hard all day, but it is the story beside the flickering fireplace that makes her "the very dearest mother in the world": a teacher may be well trained and learned, but it is the right tale at the right time that makes her a true leader. All educators of children, therefore, should know how to tell stories.

**Stories for Young Children.** One cannot tabulate arbitrarily the kind of stories suitable to children of various ages; but one can certainly state that the youngest children enjoy stories about familiar objects, such as birds, animals, flowers—even stools, tables, chairs. When these familiar objects do something unexpected, we have experience of the charm of Mother Goose.

"Hey diddle, diddle,  
The Cat and the Fiddle;  
The Cow jumped over the Moon;  
The little Dog laughed to see such  
Sport:  
And the Dish ran away with the Spoon."

Each object in these verses is known to a small child, but what wonderful things they do! The child listens with the keenest enjoyment. Such stories as the "Little Half Chick," Andersen's "Ugly Duckling," and all nature-myths have this combination of the familiar and unusual, and are, therefore, favourites with the youngest children. Very little children like nonsense tales, such as "Henny-Penny" of English folk-lore; they like stories where words and phrases are repeated, and where the thought is cumulative as in "The Old Woman and Her Pig" and "The House that Jack Built." Repetition never fails to catch the attention of the child; and, if not abused, is a valuable asset to the story-teller. Small children also like stories about tiny objects—kittens, chickens, puppies, lambs—all the babies of the world. The little marionette in the Italian "Pinocchio" is winsome because tiny. This sympathy for wee things is no doubt due to a feeling of kinship: the children are small, and they like to hear about other small beings. They enjoy stories with simple thoughts. Robert Louis Stevenson's poems in

"The Child's Garden of Verses" have this quality.

"The rain is raining all around,  
It falls on field and tree;  
It rains on the umbrellas here,  
And on the ships at sea."

The thought in this poem, that the rain is everywhere, is a tiny one—just big enough to fit a small child's mind. Lastly, very little children like stories with a moral. We often say of a book that it is not artistic if too didactic. A child's story, however, may have a moral and yet be truly artistic. The children like to have the moral there, and so it should be there. But they wish to ferret it out for themselves. The moral should not, therefore, be too pronounced.

**Fairy Tales.** The child a few years older generally craves the fairy-tale. The old fairy god-mother has been a prime favourite for many years. Shall she be banished now? Many persons believe she should be. If so, a child is robbed of a heritage that ought to be part of his education. Many fairy tales are of great age. "The House that Jack Built" came from an old Hebrew hymn; "Jack the Giant Killer" from the Norse Edda; "Whittington and His Cat" from the folk-lore of India. These fairy tales are not a national, but a universal, literature. Allusions to them are frequent in adult literature, so that the man, or woman, who has been denied fairy tales in his, or her, childhood often fails to grasp the pertinency of subject-matter. Myths and legends, or stories founded on them, and the folk-tales of the child's own country, likewise belong to this period of the fairy-tale.

The chief argument against the fairy-tale is that it over-stimulates the imagination, so that the child will not grow up to be practical. Surely it takes imagination to accomplish the most practical acts of life—to build bridges, to furnish a room, to trim a hat, or to bake a loaf of bread.

Moreover, parents and teachers need not fear the sway of the fairy-tale for too long a period. There comes a time when the child asks: "Is the story true?" Then is the time for stories from history, from the Bible, from biography and adult literature. It is the age of hero-worship and of dealing with realities. It is the age when the child begins to have an understanding of such qualities as loyalty, bravery, unselfishness, and gentleness, and likes to hear of them.

**The Humorous Story** is adapted to every age of child. At first, the jokes need to be obvious ones; but, as the child grows older, he can appreciate more subtle humour. Even though such a story has no particular educational quality, the teacher will find that the children's minds are sharpened by a good laugh. She will profit, too, from the spirit of comradeship such stories awaken.

**How to Tell a Story.** After the teacher has found her material, the best way to tell a story is to tell it her own way; yet there are principles of technique that help to make the telling more effective. Generally the story needs to be adapted. There is often much to leave out and sometimes a little to be added. It is seldom one finds a story so useful for story-telling as Laura E. Richard's "Pig Brother," which may be told almost verbatim.

First, a story should begin well. "Once upon a time," or "A long, long time ago," are favourite introductions, possibly for their sense of continuity. The child feels it all did happen a long time ago

It is like the impression that Shakespeare gives us in his plays of much having happened before the first act. We feel that Beatrice and Benedick have sparred before, and that the Montagues and Capulets have quarrelled. Next, the story should have logical sequence, and its language and plot should be simple. The story-teller must remember that she is appealing to the ear and not to the eye. Yet it is not necessary to talk under a child's heels for fear of talking over his head. Children often understand a good deal that they are not credited with understanding. It has been said that a child learns more the first six years of his life than a college man does the four years in a university. Besides, the child's vocabulary is increased by the strange word, provided he senses its meaning from the rest of the sentence. Then the story should have a good ending. It may be merely an exclamation, or a question, or a phrase that is relevant to some point in the tale. The teacher's reward for thus adapting her story will be the request, "Tell it again, please!" She can always do so, since children like the same story over and over again, just as adults enjoy familiar poems or strains of music.

After the story-teller has adapted her story, she must assimilate it. It is not necessary to memorize the exact words, for that would be making a recitation of narration; but she should know her story thoroughly. Children are perplexed by hesitation, or a confused telling; and the illusion is lost. If the story-teller has the main points of the story firmly fixed in her mind, so that she can tell it with spontaneity, she may then trust to her resources as a narrator. If she should forget, it is best not to let her little listeners know. She can slip in the forgotten point later in the story. This assimilation of stories becomes easier in time. One soon learns how to seize mentally the salient points and place them in their proper order.

The telling of the story should be simple. A too dramatic narration causes the children to become more interested in the story-teller than in the tale itself. Yet there should be enough dramatic element to hold the children. The story-teller must lose herself in her story, feel it, and make known her inward thoughts by voice and body. She must tell her story seriously. It is only a simple child's tale, but she must tell it as if it were an important message to the world. Unless she herself takes it seriously, her audience surely will not. Also she must tell her story leisurely. A rapid narration lacks force, and to guard against it requires constant vigilance.

The teacher's usefulness as a story-teller is lessened if she does not have her pupils retell the stories. There is no better way of cultivating the memory, of vitalizing and modulating the voice, and of increasing self-expression than by telling stories. The old-time recitation has its value—the pupils learn the words of the best writers. When telling stories, however, children themselves create and acquire skill in handling words and phrases. The teacher should not notice the crudities, or be too suggestive. The worth to each pupil is to tell the story his own way, and to keep his unconsciousness and spontaneity.

**The Use of Story-telling to the Teacher.** Story-telling is especially useful to the teacher of English. She can use it in her composition classes, asking her pupils to write out the story—in this instance paying greater attention to arrangement of subject-matter

and precision of diction. She can enhance an author's work by telling incidents of his life. She can often lead the way to a better appreciation of a classic by first giving its story in simpler form. It is obvious that the teacher of history also has abundant opportunities for the use of stories. She is able to make history live again, and add reality to historical personages. The teacher of foreign languages has no better medium for gaining results. Even the teacher of mathematics can find stories appropriate to the subject of her class, and will be repaid for the time taken from the regular routine of work by greater interest on the part of her pupils.

An American educator of children says: "Story-telling is not only a gift, but also an acquisition." Any teacher, therefore, can learn the art of story-telling, provided she has an understanding of children and the love of a story in her heart. She does not need to be a writer of original stories; she needs only to have willingness and patience, born of the belief that story-telling is of extreme educational value in the classroom. Then, with practice, will come a greater faculty for assimilation and for inventiveness; and she will grow to be what all teachers should be—a good story-teller to children.

S. HOLTON.

**STOW, DAVID** (1793-1864).—The son of a Paisley merchant, being engaged in charitable work in Glasgow, was impressed with the neglected and depraved state of young children in the city, and conceived the idea of attracting them to a Sunday school. He set up a school in one of the poorest streets; collected local children; and endeavoured to give them religious and moral instruction, combining teaching with training. Between 1817 and 1824 schools on his local system for about 9,000 children were established in Glasgow, and he and his fellow-workers soon proceeded to set up day schools. They endeavoured to capture children under 6 years of age, so as to begin the moral training before intellectual and moral habits had been formed. Mr. David Caughie was put in charge of their first infants' school, schools for older children followed, and the Glasgow Normal Seminary was opened in 1827. Stow took the formation of good habits as the basis of his system, but paid too little attention to the combination and co-operation of intellectual training with moral training. A prominent principle in his method was that action—doing a thing—is the best means of learning. Stow's enterprise was aided out of a Parliamentary grant in 1832; and his Normal College for teachers, after a visit by Dr. Kay Shuttleworth in 1841, received a further grant of £5,000. In 1845, Stow and his directors and teachers formed the Free Church Normal College, of which Stow remained the guiding spirit until his death.

**STOY.**—(See HERBARTIANISM, THE LATER DEVELOPMENTS OF.)

**STRATIGRAPHICAL GEOLOGY.**—(See GEOLOGY.)

**STREET TRADING BY CHILDREN.**—By Section 16 of the Employment of Children Act, 1903, the expression "street trading" is made to include: "The hawking of newspapers, matches, flowers, and other articles; playing, singing, or performing for profit; shoe-blackening or any other like occupation carried on in streets or public places." The regulation of street trading is effected by by-laws

under Section 2 of the Employment of Children Act, 1903, which empowers local authorities to make bye-laws, "with respect to street trading for all persons under the age of 16."

The state of the law is as follows: There is an absolute statutory prohibition against children being engaged in street trading under the age of 11 and no children between the ages of 11 and 14 may be employed at any kind of work after 9 p.m. and before 6 a.m. This includes street trading; and, by Section 2 (b) of the Prevention of Cruelty to Children Act, no girl under 16 may be employed on the street for the purpose of street trading between 9 p.m. and 6 a.m. In the daytime, a child who has reached the age of 11 is restrained from street trading only by such by-laws as have been made and enforced by the local authority with the approval of the Home Secretary.

In Scotland and Ireland, practically no advantage is taken of the power to make by-laws; and in England and Wales, although by-laws are generally made in large towns, they are enforced with every variety of laxity or strictness, and are rarely accompanied by proper inquiry and supervision such as is secured at Manchester and a few other places.

The system of licences, or, as in London, regulation by badges, is almost invariably adopted; and, in the majority of cases, street trading by girls under 16 is entirely prohibited unless they are trading in the company of a parent or guardian. The numbers of children in England and Wales who are licensed or badged average rather more than 26,000, or, adding those who trade without permission, probably 35,000.

The children so employed belong to the poorest part of the population, and come for the most part from undesirable surroundings and what are known as slum dwellings.

The age at which children trade in largest numbers is between 13 and 14. In London, about 10,486 boy traders are aged between 11 and 14, and only 3,387 between 14 and 16.

Of all forms of street trading, the hawking of newspapers is by far the most important, and probably the most demoralizing; but, speaking broadly, there is a general consensus of opinion that all street trading by children is undesirable. The reasons for this are given in the report of the Departmental Committee which was appointed in 1909. The child learns by association the habits of those who frequent the kerbstone and the gutter. If money is earned easily without discipline or special skill, it creates a dislike or disability for more regular employment, and sharpens the wits at the expense of real intelligence. Singers and match-sellers naturally become beggars; newspaper-sellers or corner-boys, with few exceptions, become gamblers. For girls, there is strong evidence that street trading is often the prelude to a life of immorality.

The tendency of modern thought is towards general prohibition up to the age of 17 or 18, but it is felt unjust to use compulsion or prohibition exclusively for the very poor without at the same time passing measures which would tend to improve their homes and the general condition of their lives.

C. M. CHAPMAN.

**STUDENT LIFE, THE HISTORY OF.**—The life of the mediaeval student naturally varied with the type of university to which he belonged. In the

Universities of Italy, Spain, and Portugal, and in the provincial Universities of France, the governing body consisted of a guild, or *universitas*, not of masters, but of students; and the life of the student was controlled by rules which he and his fellows had made for themselves or had received from their predecessors. The rector, the head of the university, was elected by the different "nations" into which the students were divided; he was a constitutional, not an arbitrary, ruler. The doctors, or teachers, were under the jurisdiction of the student guilds and their rectors, and were liable to be fined for absence, for lateness, for attracting too small an audience, for ignoring the more difficult topics on which they ought to lecture, for inattention when the precepts of the rector were being read, and for similar offences. Every student was a spy upon his master, and was liable to a penalty for connivance at any infringement of the regulations. The right of examining was almost the only important privilege reserved to the doctors. The university also protected the student against the town, using the threat of migration to compel the citizens to submit. Foreign students were given all the rights necessary for the protection of their persons and property; they could make wills and bring actions against citizens. Disputes about the rents of houses were decided by compulsory arbitration; booksellers' MSS. were inspected as a precaution against copyists' errors, and the profit on a second-hand book was fixed. Any citizen or doctor who defied the university was debarred from all intercourse—social, tutorial, or commercial—with the students. There were disciplinary regulations for the students themselves. The university restricted the expenses of the feasts given on graduation and other occasions, and expensive clothing was forbidden. Gambling and borrowing money from unauthorized moneylenders were strictly prohibited, and many enactments were issued against the personal violence which often followed differences of opinion. The university or the "nations" also served as benefit societies, and made provision for the poor and the sick, for religious services, and for feasts. This free and autonomous form of student life belongs to the earlier Middle Ages; various circumstances had led, before the Renaissance, to the loss of many privileges by the student-universities, especially in Italy, which was their original home.

**Universities of the English Type.** Where the *universitas* was a guild of masters, as at Paris, Oxford, and Cambridge, the conditions of student life were, of course, widely different; but, here also, the student of the twelfth, thirteenth, and fourteenth centuries had much more independence than his successor of the fifteenth or sixteenth century. The authority of the masters was at first confined to regulations about studies and examinations, and the university scarcely concerned itself with the details of daily life. The change may be traced to the development of the college system. It was always desirable that students should live together in communities; and, as there grew up a tradition of "town and gown" hostilities, some such arrangement became absolutely necessary. Thus arose the mediaeval halls—originally free associations of students who appointed their own head and could dismiss him at pleasure; at first, the university did not even insist that the head of a hall should be a Master of Arts. As the monasteries lost popular confidence, the attention of the pious donor was

diverted to the secular clergy, for whose benefit halls were endowed in the universities. It has never been the custom of pious donors to give money without also making conditions, and the founders of early colleges drew up regulations for the conduct of the members of their societies. As time went on, these college statutes paid more and more attention to daily routine. Conversation in English was forbidden; rules were made against carrying arms, unpunctuality, bringing strangers into college, sleeping out of college, absence without leave, idleness, scurrilous language, and the like, as well as against serious moral offences. The earlier punishments were fines or deprivation of allowances and, for very serious offences, expulsion. About the middle of the fifteenth century, college statutes began to introduce the birch for minor offences, and whipping was a frequent punishment until the seventeenth century. It must be remembered that the student was very young. As the system developed, a college came to provide for all the needs of its members—board, lodging, clothing, books, tuition, and religious services. The two meals of the day—dinner about 10 a.m. and supper about 6 p.m.—were served in the hall, passages of Scripture being read aloud during the meal. As dinner became later, in accordance with general custom, there grew up an informal breakfast, taken in a man's own rooms. Darkness and cold (for there were no fireplaces in private rooms) drove the mediaeval student early to bed, and the day's work began, even in winter, at six in the morning. The number of occupants of a single room varied in different colleges, but separate beds were usually provided. The general type of a college chamber was a room with one large window and two, three, or four, small windows, at which the occupants might read their books. In early times, a wooden shutter took the place of glass. Amusements are mentioned in college statutes only to be forbidden: chess, attending theatrical performances, keeping dogs or other animals, fishing, dancing, and jumping were all strictly prohibited. A game of ball in the garden was sometimes, though very rarely, permitted; and almost the only relaxation was gathering round the hall fire on the evenings of feast days and listening to improving stories. All students were technically clerks, and wore the tonsure and clerical dress, though they were not necessarily even in minor orders. In the earlier college statutes, daily attendance at chapel was not insisted on for undergraduates, but later founders were more severe about this, as about other things. Leave of absence might be given in the university vacation (July–Oct.), and arrangements were made for visits from fathers or brothers. The establishment of so strict a system of discipline in the endowed halls or colleges could not fail to influence the attitude of the universities to the unendowed halls, and from the fifteenth century elaborate regulations were made for their administration; and the student of a hall came to have no greater liberty than his contemporary who had the advantage of college endowments. The universities also made rules for the conduct and dress of the students outside their colleges or halls, and possessed prisons for the punishment of offenders.

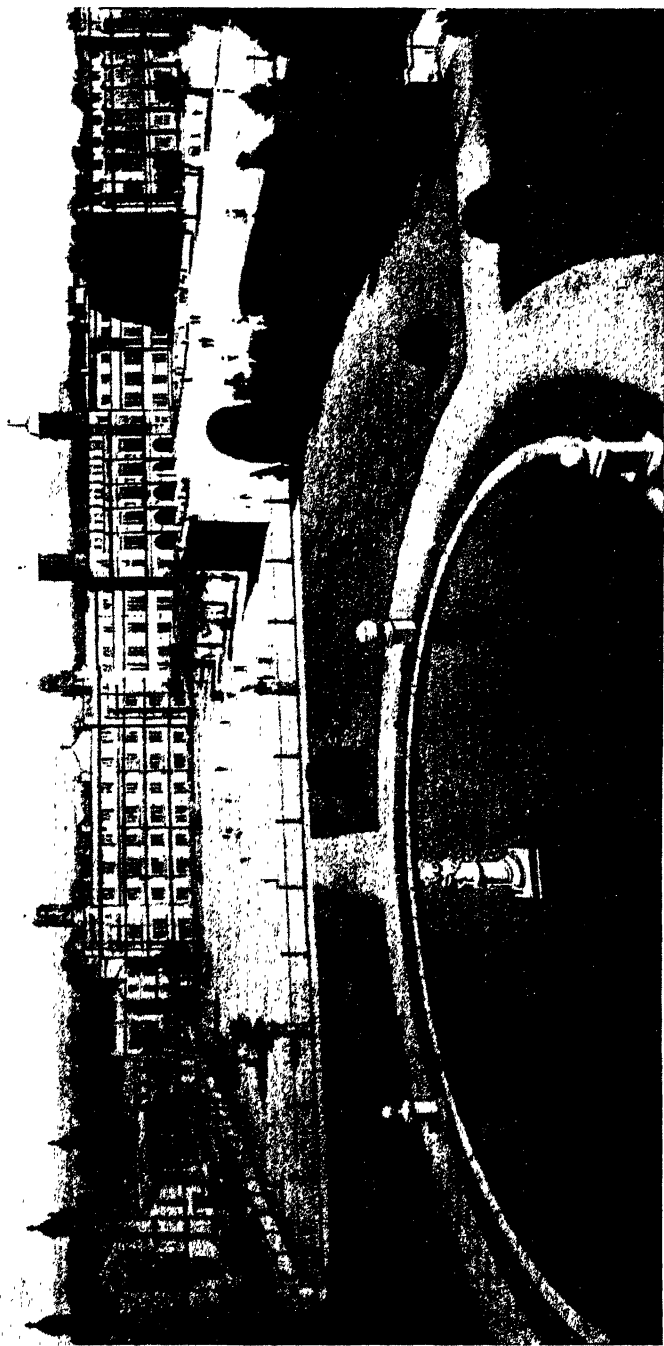
**Riots between Town and Gown.** Much of the excitement of mediaeval student life was connected with town and gown riots, and with the ceremonies of the initiation of Freshmen. The records of Oxford and Cambridge, Paris, and German universities

abound in illustrations of violent encounters between the inhabitants of a university town and the students. The most famous example is the battle of St. Scholastica's Day at Oxford (10th Feb., 1354). The riot originated in a tavern brawl, and the fighting went on all day without a single serious casualty. But, next day, the townsmen stationed eighty armed men in St. Giles's Church, and they attacked a body of students, killing one and wounding another. A record battle was the result, and it continued for two days, and many members of the University lost their lives. The city of Oxford was punished by being placed under the jurisdiction of the University, and the citizens had to go through a somewhat humiliating ceremony every St. Scholastica's Day until the nineteenth century. There are similar stories belonging to Paris and to Leipzig, and, as a rule, the university was triumphant in the end.

**The Jocund Advent.** The initiation of Freshmen, known as the Jocund Advent, was an occasion for feasting, accompanied by much solemn fooling, generally consisting of parodies of University ceremonies. The Bejan, or Freshman, was regarded as afflicted with mortal sin, requiring purification, or, especially in Germany, as a wild animal who had to be tamed. The purifying process consisted of cleansing by an aspersion of water, or beating with various instruments, from a ferrule to a frying-pan; the taming process was a much more ferocious matter, and involved a considerable amount of torture in attempts to remove imaginary horns, file down imaginary tusks, and shave "the long and horrible beard." The ceremonies always concluded with a feast by which the victim propitiated his tormentors. The University authorities, as a rule, made no effort to prohibit these initiatory ceremonies, and were content with trying to limit their ferocity and their expense. Details about the treatment of the Bejan (*bec jaune*, yellow beak) come mainly from the universities of Germany and of provincial France; there is no reference to the Jocund Advent in the mediaeval records of Oxford and Cambridge, but it is impossible to doubt that it existed there; and Anthony à Wood refers to something of the kind as surviving into the seventeenth century. There were traces of it at St. Andrews and Aberdeen till quite recent years.

**More Recent History.** After the middle of the seventeenth century, much that was characteristic of mediaeval student life disappeared, especially in England, where the Great Rebellion draws something in the nature of a dividing line in academic history. Until the nineteenth century, there was little that can be described as characteristically academic in student life; young men amused themselves in various ways, in accordance with the fashions of the times and as their contemporaries were doing elsewhere. University discipline, both with regard to studies and in regard to the routine of daily life, became much less strict; and it was not until the nineteenth century, when university studies became much more serious, that undergraduates themselves developed customs and institutions distinctively academic. Only a very few colleges possessed Junior Common Rooms before the nineteenth century, and the great development of Common Room life belongs to its later years. The University Union societies, which began as debating societies and developed into clubs (retaining their public debates), date from the second quarter of the nineteenth century; and





*Stonyhurst College—South Front*

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they have been followed by social, political, and athletic clubs of all sorts, and by dramatic societies. The elaborate organization of athletics is also a development of the second half of the nineteenth century. The first University boat race was rowed in 1829, but it did not become an annual event till 1856. The first University cricket match was played in 1827, but the history of inter-University cricket is continuous only from the beginning of the reign of Queen Victoria. R. S. R.

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**STUDENT SONGS.**—The value of music in promoting *esprit de corps* in school, college, or regiment is beyond question. "The soul of a regiment is to be sought in the band," says a poet; and he is right, provided that the band is more than a body of mercenaries and that it is directed by a musician of warm sympathy and high ideal. Even more intense may be the influence of united song upon younger people in school or college, because early impressions last longest, and self-made music has more potent sway than that which comes from without. It is impossible to gauge the depth of the emotional force possessed by such a volume as the *Harrow Song-book*. A bit of precious evidence survives from the Boer War. One of our units was in a tight place, losing rapidly and expecting annihilation. Some one started "Forty years on," and the old school song discovered enough Harrovians in that brotherhood of misery to rekindle wondrous memories, and despair gave place to hope as the chorus "Follow up!" rang out. The *Harrow Song-book* and *Gaudeamus* (q.v.) have done so much for two generations of English youth, that it is surprising there was little organized effort in this country earlier to provide a mass of common song for school and college. Folk-songs and national songs were, of course, available; and isolated student-songs were used in many places, including Latin songs of the gownmen of the Middle Ages, such as "Gaudeamus Igitur," "Integer Vitae," "Lauriger Horatius," and "Dulce cum sodalibus." The importance of preserving such songs, and of adding suitable other songs reflecting every kind of human interest, was realized on the Continent more than a century ago. But, though we were more tardy, the spirit that inspired John Farmer to produce the *Harrow Song-book* and *Gaudeamus* still lives, and his successors in schools and colleges are now awake to the need for carrying on and consolidating the work. *The Scottish Students' Song-book* stands as a model of what such books should be in most respects. Much of the contents is distinctly Scottish, a merit but also a drawback, because some of these songs have little appeal in England, Wales, or Ireland, where both their language and their subtle humour are strange. But the selection is large enough for varied tastes, including Songs of the Gown, Songs of the Nations, Soldier-Songs and Sea-Songs, Songs of Love, Songs of Revelry, Divers Ditties, Plantation Songs, "For Auld Lang Syne," Songs of the Universities. The feminist movement now calls for recognition of the changed conditions under which many colleges will work in future, and there is a new field here for authors, composers, and editors, especially in providing suitable part-music. Meanwhile, girls in

schools and young women in colleges make merry with their brothers' songs; and "Gaudeamus," "Forty years on," "St. Joles," and "Willow the King" find new friends in places little dreamed of by their authors. J. E. B.

**STUDY.**—The term "study" is used, especially by American writers on education, to denote the process by which the boy masters some subject or solves some intellectual problem. ("Boy" is here used in the sense of "boy or girl," and "master" in the sense of "master or mistress.") The term is sometimes employed to cover both independent and co-operative work (e.g. the preparation of a lesson by a boy at home and the discussion of the lesson in the class). It seems, however, more convenient to follow the alternative practice of confining the meaning of the word to the former type of process. Study is then, roughly, equivalent to independent work, including the preparation of lessons and other forms of systematic intellectual work carried on by the boy in relative isolation.

Recent developments have tended sometimes to obscure the importance of the individual aspect of intellectual progress. Justice has been done to the social basis of knowledge, and stress is laid upon the stimulating influence of the social environment in which learning is carried on. The boy learns or produces mainly as a member of a class, making his contribution to the result which is achieved by the co-operative efforts of himself and his fellow-members. This emphasis on the social aspect of school work has undoubtedly led to results of great and permanent value; but, just as the close association with our fellows, which is the condition of intellectual and moral evolution, needs in the interests of mental health and strength to be relieved by opportunities for privacy, so the work done by the boy in class must be supplemented by work done by him as a separate individual. (See Graham Wallas: *Human Nature in Politics*, p. 50 ff.) If he has been accustomed to put forth effective intellectual effort only when stimulated by the guidance or co-operation of others, he is likely when left alone to lack initiative and resource. The effects of too exclusive a reliance upon class work are seen in many schools. Even if the independent task is successfully accomplished, it is accomplished only by the expenditure of unnecessary time and energy.

It follows that a boy should be given systematic practice in working independently, and that he should be specifically trained in the use of economical methods of study. The necessary guidance is given by many masters in special cases, but the general problem of how to study rarely receives the attention it deserves. In any discussion of this problem, full allowance must be made both for the boy's individual characteristics and for the special nature of the task to be performed. Still, certain general principles may with advantage be impressed upon the boy. Of these principles, two only can be mentioned here. In the first place, the conditions under which the work is done and the arrangement of the work itself should reduce fatigue to a minimum and obviate waste of time. Most masters must have been struck by the failure of many boys to put their apparatus (e.g. their dictionaries) in the most convenient place, or to prepare a series of lessons in the most economical order. Occasional brief expositions of the theory of fatigue

might lead to a more appropriate procedure. It is possible also to encourage labour-saving devices in such matters as note-taking, the use of abbreviations, and the introduction of occasional pauses into long periods of work.

A second principle is that the task to be achieved ought, speaking generally, to be attacked as a whole or, at any rate, as a system of connected wholes. This principle is an application of the coherence theory of knowledge, the approximate truth of which is here assumed. (See References below.) Thus if a boy has to learn a poem by heart, he should be told to learn the poem, or a section of it, as a whole. Similarly, if he desires to master some portion of a book (e.g. a chapter of a text-book, or a proposition in geometry, or a passage in a foreign language), he should try, in the first instance, to obtain a bird's-eye view of the matter with which he has to deal. The same principle holds good also when the boy is engaged on more original work (e.g. when he is writing an essay, formulating a theory, conducting an investigation, or constructing some material object).

In order that the boy may acquire the habit of applying these and other relevant principles, the work he attempts must fulfil certain conditions. It must, for instance, appeal to him as being of intrinsic value. In some instances, the specific aim will be chosen by the boy himself, in others it will be prescribed, but in any case the whole process of study should be inspired and guided by the boy's endeavour to satisfy some interest of his own. If the aim is determined for him, it is generally important that it should be clearly defined. Vagueness of aim tends to diminish the satisfaction in achievement, which is one of the main incentives to study. The task must evoke the boy's initiative and yet not be so difficult as to render his best efforts fruitless. If a boy is led systematically to study on these lines, experience shows that a marked increase in his powers of original work may be expected.

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**STUPOR.**—Diminished activity of the intellectual faculties, often amounting to lethargy. The sufferer loses power of attention and concentration of thought. Stupor occurs in many affections and disorders, especially in the neuroses (diseases of the nervous system), and is indicated by disordered sensation, volition, or mental manifestation, without any material injury or agent producing them. The cause may be accident, excess of alcohol, epilepsy, professional or physical overstrain, or even sudden fright or thoughts on frightful subjects.

**STURM, JOHN** (1507–1589).—A great Renaissance Protestant schoolmaster, was born at Schleiden, in the Rhine Province. He was a pupil at Liège, a school under the Brethren of the Common Life (*q.v.*). It has been suggested that few

universities of the time provided so complete a course in the classics (*c.* 1500) as the Liège school. Sturm further studied and taught at Louvain (1524–1530). He was partner with Rutger Rescius, the scholar-printer, and together they published classical texts. He then went to Paris to sell the Louvain books, but remained to give public lessons at Paris. In 1538 he was nominated rector of the Strasburg Gymnasium or Academy, which he organized. It became one of the most successful schools on record, and numbered several thousand pupils. It is said that at one time there were 200 boys of noble birth, 24 counts and barons, and 3 princes. (QUICK, *Educational Reformers*, p. 227.) The school included Poles, Portuguese, Spaniards, Danes, Italians, French, and English pupils. Moreover, it was "the mother of a numerous progeny of schools." Roger Ascham (*q.v.*) met John Sturm abroad, and in his *Schoolmaster* acknowledges that he "borrowed" from him, and in a friendly letter says his own book is but a "rude porch" to the Academy of Sturm. From 1538 till 1581, Sturm remained rector of the Strasburg Academy. He died in 1589.

**Educational Theories.** Sturm desired to make Latin live again in his school. From the first, boys were taught to use the Latin name for every object of sense-perception; in school and out of school, in games, Latin-speaking was compulsory. Entering the school at 5 to 7 years old, the children began Latin grammar and Cicero's Letters. Composition on the model of Cicero was constantly required. Latin verses were required mid-way in the school course. Ascham's method of double translation (from the classical language into the vernacular and, after an interval, back again to the original) was in practice in Sturm's school. The upper forms translated Greek authors into Latin, and Latin authors into Greek. The Greek New Testament was in regular use, and parts learned by heart. Logic and rhetoric were learned in connection with Latin and Greek authors. The dramas of Terence and Plautus were acted, so as to secure good enunciation, and the storing of Latin phrases for conversation. Schmidt insists that Sturm approved of the teaching of elementary natural science, of mathematics, and of astronomy, but, of course, founded on ancient writers. He advocated music teaching and physical education.

Schmidt gives a list of forty-five writings of Sturm on educational subjects, amongst which were the important *De Literarum Ludiis recte aperiendis liber*, 1538; *Nobilitas literata*, 1549, for which Ascham describes Sturm as "far the best that ever took this matter (*i.e.*, imitation) in hand." This book was translated into English in 1570 by "T. B.": *De Educatione principis*, Part I, 1551; *Scholae Lavinasnae*, 1563; *Classicae Epistolae*, 1565. (See also BRETHREN OF THE COMMON LIFE.) F. W.

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**STUTTERING.**—(See NERVOUS DISEASES OF SCHOOL CHILDREN.)

**STYLE IN ENGLISH LITERATURE, APPRECIATION OF.**—Every teacher of English realizes the difficulty of developing in his pupils a proper feeling for style. A knowledge of the subject-matter and its argument, an appreciation of its intrinsic and historic value as a contribution to thought, are easily instilled. But until the student had learned to appraise the medium in which this is conveyed, its essential beauty, and the measure of its suitability to the author's purpose, he has not understood, still less has he felt, the meaning of literature as an art. And herein lies the teacher's difficulty, that in the end the sense of style remains an aesthetic impression, which cannot be demonstrated like a problem in geometry. Yet few children are without some instinct for language, at least on its musical side; their logical sense for it grows with the growth of their minds; and their power of discrimination between good and bad, dulled by the constant perusal of inferior books and papers, can be revived and cultivated by careful and intelligent training.

There are three indispensable preliminaries to the study of literary style—

1. The pupil must have some acquaintance with masterpieces in easily distinguished "kinds" of literature: in *verse* drama, epic, narrative, lyric, in *prose* specimens of simple narrative, of vivid dialogue, of ornate description, of conscious and unconscious rhetoric. He must have read these aloud himself, and heard them read by one competent to give to each word its proper intonation and value. He must realize that words, primarily intellectual symbols, have an emotional as well as a logical value; and that what is true of words in themselves is even truer of words in their relation with one another.

2. He must have had some practice in writing, so that he has passed the stage of grammatical and syntactical error, and has himself experienced the real difficulties of attaining exact and adequate expression of all but the most obvious common-places.

3. He must have some clear notion of what is meant by style.

Thus he must be rid of the common fallacy that style means ornament, and must have learnt to regard it simply as expression, to be judged good or bad in so far as it expresses sincerely and adequately the idea and mood of the author at the time of composition. He must realize that the peculiar style of any literature is determined partly by the subject, partly by the idiosyncrasy of the author, partly also by the audience to whom it is addressed; and he must judge its merits by its nice adjustment of means to the end in view. In the differentiation of styles, it is well to begin with the elementary distinction between poetry and prose. Technically, poetry is that form of verbal expression which falls into the mould of a regularly defined rhythm, prose that form which does not: in their original purpose, poetry set itself to express a feeling rather than a fact, whilst prose was utilitarian, desiring simply to communicate knowledge. Yet prose is not long content with so humble an office. Beginning by attention to what should always be its first care, a lucid and accurate presentation of its subject, it realizes more and more that the human element present in all thought finds voice in the melody and rhythm of the words—distinct, indeed, from that of verse, but hardly less essential if the author's full

meaning is to be conveyed. To illustrate this point—

1. Compare passages where prose and verse are furthest apart (*e.g.* Swift's prose, Milton's poetry), and yet each has its unmistakable rhythm.

2. Examine passages where prose-rhythm encroaches on verse rhythm (*e.g.* parts of Ælfric, close to alliterative stress rhythm; parts of Ruskin or Dickens, tending to blank verse), and, conversely, passages where verse rhythm approaches prose (*e.g.* later Elizabethan dramatists; Wordsworth's blank verse or M. Arnold's lyrics at their worst). Both these tendencies are dangerous if not fatal to success in the particular medium employed.

3. Compare closely related passages of prose and verse, where nearness in diction yet difference in rhythm may be shown (*e.g.* North's *Plutarch: Lives of Caesar and Antony*, with Shakespeare's paraphrase of them; extracts from Dorothy Wordsworth's journals, with her brother's poems). It may further be considered how far this rhythmical change has affected the meaning, *meaning* being always understood to signify emotional as well as intellectual content. Note also the tendency to condense and select, which is generally associated with metrical form. The various forms of verse may then be compared, and their suitability considered for the different purposes to which they are put, and the different effects obtained in them (*a*) by different authors, (*b*) by the same author in different parts of his work. The various types of prose may also be compared and a rough attempt made to classify them, though each type will be found to merge in the others.

**Analysis.** The student may then proceed to a detailed examination of the constituent elements in any given author's style—sentence structure, imagery, vocabulary, and the use made of the various devices of style-*assonance*, alliteration, repetition of words or phrases, antiphonal clauses, etc. Are his sentences long or short, simple or complex, loosely or firmly knit? How are they related to one another and to the paragraph of which they form a part? On what sources does he draw for his imagery, and how far does he consciously indulge in it? Is it really expressive and alive, or merely hackneyed and dead? Is it simple and pointed, or elaborately drawn out? Is it strictly subordinate to the idea prompting it, or is it extraneous ornament? Is his vocabulary rich and full, or narrow and resourceless? Is it, as a whole, English in its origin, or is it drawn largely from Latin and French? What is, broadly, the effect of Latin words upon style? Does the author coin words or use them in a new sense, or is he conservative in his vocabulary? Study in particular his epithets, and decide whether they are expressive or often merely otiose. Are they remarkable for vividness, or subtlety, or force? Has he any favourite words or type of words, and, if so, what is their effect upon his style? And where his logical meaning is obscured rather than elucidated by sentence structure, imagery, or diction, reflect whether any other legitimate effect is gained by the sacrifice. His use of alliteration, *assonance*, repetitions of words and phrases, etc., may then be discussed, not only from a musical point of view, but in strict relation with his meaning. How far do these devices really help to enforce his *meaning*, how far are they simply external tricks of style? Their use and abuse should be illustrated from other authors who have in view a kindred

object. The student's appreciation of all these points will be sharpened if he is set to imitate the author's style himself, or, still better, to turn a passage from one author into the style of another. He will thus learn wherein lies the author's individuality, and if he is only able to reproduce the barest externals he will thereby come nearer to realizing the significance of what he cannot reproduce.

**Comparison.** Much may further be learnt from comparing specimens of an author's work written at different periods of his career (Shakespeare's early and late plays; Milton, *Comus*, *Paradise Lost*, and *Samson Agonistes*; Bacon, *Essays*, *Advancement of Learning*, *Life of Henry VII*; Browne, *Religio Medici* and *Christian Morals*; Lamb, early essays and *Essays of Elia*, etc.) and from considering how far the difference in style is due to a change of subject and how far to a change in literary ideal. Of equal value is the careful examination of the alterations that great poets have introduced into their texts *either* before publication (e.g. Milton's MSS. of *Comus* and *Lycidas*; Keats's rough drafts of *Ode to a Nightingale*, *Hyperion*, etc., compared with their polished versions) *or* in later editions of the works (e.g. Wordsworth, Tennyson). If the student asks himself in each case why the change was made, whether principally for the sake of rhythm or to gain a closer and more vital expression of his concept, or from a change of artistic ideal; and if he reflects in what ways the change affects him in reading, he will often learn much concerning the subtleties of style. There are fewer examples of such changes available in prose writing (but cf. the three versions of Bacon's *Essays*); yet something can be learnt from comparing different expressions of the same idea on different occasions (e.g. Lamb's *Essay on Roast Pig*, with his letter to Coleridge on the same theme), and a study equally fruitful can be undertaken by comparing different translations by different hands of the same masterpiece (e.g. the Bible).

In all discussions the teacher must guard against undue dogmatism. The pupil must be led, not dragged. He must rather be encouraged to do the work of analysis for himself than have it done for him. It is probable that at first his taste will be less severe than his master's, and he will tend to delight in meretricious ornament. But the whole object should be to train him to form his own judgments, and his power to do this will grow insensibly, and his taste grow purer as he becomes more intimately acquainted with masterpieces in the different kinds of composition, and learns for himself to note their distinctive qualities.

E. DE S.

**SUB-CONSCIOUSNESS, THE EDUCATIONAL ASPECTS OF.**—LOGICALLY there is room for only two states, Consciousness and Unconsciousness; for at any given moment we are either conscious or we are not. Psychologists recognize this when they speak of the threshold of consciousness. Once an idea falls below this threshold it is unquestionably in the realm of the unconscious. But practical considerations interfere with the smooth-running distinctions of logic. All the elements that are said to be below the threshold are not in the same state. Some appear to be perfectly passive, others uneasily dormant, and still others are in a condition of what may be called

sub-activity. The state of affairs below the threshold is not unlike the state of affairs above. In both cases the elements that make up the content may be arranged according to their power of influencing the mental process at any given moment. The continuity between the upper and the lower realm is recognized by the term that is often applied to what lies below the threshold. When we speak of "the subliminal consciousness" we implicitly grant that there is a "sort of" consciousness that is not quite what we usually understand by that term. This view obviously reduces the importance of the threshold, if indeed it does not challenge its very existence. Yet the plain man readily admits that there is a difference between what is above the threshold and what is not. His trouble is to distinguish between the two grades—sub-consciousness and unconsciousness.

**The Threshold of Consciousness.** Sometimes the prefix *sub* appears to be used as indicating merely a lower degree of anything, as in the case of *sub-activity* as used in the above paragraph. In this sense the sub-consciousness should not be treated as below the threshold at all. It is only a weaker form of consciousness. But for many minds the prefix *sub*, as applied to consciousness, is connected with the notion of the threshold, and for them the sub-conscious must be regarded as *below* the threshold. For practical purposes it may be permitted to treat the conscious, the sub-conscious and the unconscious as making up a great series of states of gradually diminishing intensity from focal consciousness on the one hand to total passivity on the other, the whole being divided into two by the threshold, which is assumed to occur just above the sub-conscious. At any given moment, then, the subliminal would include all the elements of which we are not conscious, though these elements may be roughly classified into a group having some activity (the sub-conscious), and another having none.

The content of the whole series from focal consciousness to inert unconsciousness may be compared to the content of the spectrum as it appeals to human sensation. According to the lengths of the ether waves, different colours are presented to the human eye. A certain wave length gives the sensation of red; with diminishing wave lengths, the various colours of the spectrum are presented till after the violet band has been passed the wave lengths are too small to make a colour impression on the human sense. But both above the violet and below the red there are wave lengths, though they do not produce colours to the human eye. In the same way below the threshold of consciousness there are activities, though they cannot lead to that state that we all recognize as consciousness.

Some regard consciousness as a mere epiphenomenon, as something that accompanies certain physiological processes, but has no significant causal relation with them. However this may be, it is generally admitted that some physiological process accompanies all states of consciousness, and there is no reason to suppose that these processes actually cease even when they fall below that degree of intensity that is necessary before they can be accompanied by consciousness. When we are unconscious, these processes of diminished intensity may correspond to the vibrations of the ether whose wave lengths are too long to produce the sensation of red.

**Active and Passive Elements of the Subliminal.** It is obviously to the educator's advantage to recognize the distinction between the active and the passive elements that make up the content of the subliminal. At any given moment this content may be divided into two sections, the smaller of which will include all the elements that for some reason or other are at that moment exercising influence on the content of consciousness, while the other section includes all the remaining elements, these being mere potentialities. The first section would then represent the sub-consciousness, while all the other elements would belong for the moment to the unconsciousness. On this view all the ideas that are either on their way into consciousness or have just passed out of consciousness will form the most prominent elements of the sub-conscious segment, while ideas that are more or less closely connected with these will have a greater or less degree of influence on whatever ideas are at that moment in consciousness. Whatever has once formed part of the mental content, and has been driven below the threshold, will necessarily form a part of the subliminal content. It may exercise practically no influence at any given time on what is above the threshold, but on the other hand it may at any moment be roused to activity if there should enter the consciousness elements in some way related to it. The process of education consists largely in building up connections among elements that it is of importance to keep co-ordinated with one another. When Herbart sets up the ideal of education as the cultivation of a many-sided interest, he is really pleading for such a correlation of the elements of experience that the content of the subliminal shall be sensitive to the appeal of certain kinds of stimuli that may originate within the realm of consciousness. In Herbartian terms, it is the teacher's business to increase the presentative activity of certain ideas, so that it is easy to cause them to rise above the threshold. Dropping the Herbartian figure of speech, that treats the ideas as almost self-active forces, we may express the facts by saying that what the educator has to do is to increase the sensitiveness of the mind to certain classes of stimuli, whether these come directly from without, or from the organization of the processes that are set up as the result of the interaction between the mind and the outer world. The teaching of a particular subject is really the systematic increase of the presentative activity of certain correlated ideas. In actual classroom work the teacher is often concerned mainly with what is going on in the sub-consciousness of his pupils. In dealing with a certain problem the pupil has often an uneasy sense that the line he is following is not the right one, but he cannot tell exactly why. This state of mind results from the fact that within the realm of the sub-conscious are certain elements that are antagonistic to the conclusions to which the elements within the consciousness would lead. These disturbing elements cannot produce their definite effects till they have risen above the threshold, but even while subliminal they have the power to exercise at least a warning influence. It is the teacher's business, wherever possible, to stimulate the vague protests from the sub-consciousness. By more or less direct suggestions he may arouse elements that exercise a calculable influence on what is going on in the consciousness.

#### **The Part Played by the Subliminal in Education**

**and in Life.** The Freudian school lay great stress on the subliminal. They regard it as making up the true man. Educationally this view is of great importance, though it is only an exaggerated statement of a point of view that is not specially Freudian. For the teacher the important problem is the building up of the subliminal. The value of an education may be justly tested by the sort of subliminal content it produces. The great function of education is to help the educand to form good habits. Sometimes this process is, perhaps a little crudely, described as helping the pupils to pass on the direction of certain activities from the upper to the lower brain. This is the physiological way of saying that habit formation consists in the elimination of consciousness from the performance of certain acts—in other words, of reducing certain activities from the conscious sphere to the subliminal. Here arises for the educator a practical question of great importance. Does the educational process always work the one way, or can it be reversed? Must the educator always begin with the consciousness of his pupils and pass on to the unconscious, or is it possible for certain pieces of knowledge or skill to make their beginnings in the subliminal and pass upwards into consciousness? There appears to be a growing belief that this upward movement is not only possible, but that it counts for a great deal in our psychological development. The change from Professor James's "big, blooming, buzzing confusion" to the ordered universe of the adult is not accomplished by conscious process. We acquire certain knowledge and skill and then realize that we possess them. To help in this upward development the educator must begin in the realm of the sub-conscious as outlined above.

**SUBJECTIVE AND OBJECTIVE.**—The antithesis of subjective and objective has been put to many uses, but it will here be considered only in so far as it expresses the difference between two important tendencies in educational thought and practice. On the one hand education may be conceived primarily as a process by which the learner is led to conform more closely to the demands of some ideal possessing universal and absolute validity. According to this view, the aim of instruction is to give a knowledge of truths valid independently of the knowing mind. The purpose of discipline is to produce obedience to an ethical code which must be accepted as authoritative. This point of view emphasizes the objective aspect of education. It tends in practice towards uniformity of organization and methods of teaching, and towards rigidity of discipline. It was dominant throughout the Middle Ages and maintained its influence in education long after the Renaissance and Reformation had vindicated the rights of personal thought and feeling in other fields.

In contrast with this objective conception of education, another current of thought and practice tends to view the aim of education as consisting in the perfection of the individual educated. The mind itself rather than its environment is regarded as the determining factor in education. Hence, for example, the learner's mental activity or power is more highly valued than the actual knowledge gained, and unquestioning obedience to authority is subordinated to the claims of freedom and initiative. This view gives prominence to the

subjective aspect of education. It leads to a keener appreciation of individual differences, and to a corresponding variety in methods of teaching and discipline. In educational theory it found expression in the doctrine of formal training, and, more adequately, in the view that the aim of education is to foster mental growth by the encouragement of the mind's activity in accordance with the laws inherent in its nature.

**The Relation between the two Tendencies.** Both these conceptions of education appeal strongly to the thought of our own day, and are typical of far-reaching social and intellectual tendencies. We lay stress upon the importance of scientific and other knowledge, and upon the necessity of subordinating the interests of the individual to those of the community. But we realize also that education should be carefully adapted to individual needs, and that it should be a process of activity and freedom. A complete reconciliation of the two points of view will be effected only when our social life and modes of thought become more comprehensive and coherent. The short and easy method of affirming their identity, as Herbert Spencer did, is obviously inadequate, but there are signs that the opposition between the two conceptions is becoming less acute. It is recognized, for instance, that, if we unduly emphasize the subjective aspect of the process of education, we make that process abstract and unreal. You cannot develop a boy's reasoning power as such; you can teach him to reason only by leading him to exercise his mind upon some aspect of reality. Similarly his freedom does not consist in his doing what he thinks fit, but in his whole-hearted devotion to some social or other objective end. On the other hand it is equally impossible to isolate the objective aspect of the educational ideal. Knowledge does not consist of facts or truths unrelated to the mind that knows. It is an active attitude by which the mind makes some part of reality its own. Right conduct is no mere conformity to an external standard, but the realization of an interest in the good. Difficulties undoubtedly remain, but it is clear that the mind cannot be divorced from its environment, nor the environment from the mind. The aim of education is the development of the learner's interests in reality.

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**SUBNORMAL CHILDREN.**—(See MENTAL HYGIENE OF THE CHILD, THE.)

**SUGGESTION.**—When a statement of fact is made a healthy mind proceeds forthwith to use upon it its powers of criticism. It asks if it is consonant with other facts already experienced or with the general view of life that has been formed, and if it is not, it either rejects the statement altogether, or believes it only to a moderate extent. This process of criticism is the means by which an individual mind holds its own and asserts its independence of the world around it. Its extent tends to vary with race, age and sex. Generally speaking, the sturdier and the more independent

the mind the more it is inclined to question and to test the validity of any statement made to it. In the trained mind of an adult, this critical reaction takes place in close connection with a body of principles established by experience and thought. This critical attitude is present in the young, and especially during the years of adolescence (13-17), when the mind is developing rapidly and is becoming aware of its powers; but at this age the body of principles and of knowledge which in many cases guides the adult in his criticism is not in existence, and as a result we find a tendency to contrariety which is personal and wayward and has little justification in thought.

For this attitude, which often is inimical to the reception of truths, there are two remedies. (1) We can give a body of principles and of experience which will assure that the criticism will be well-judged. (2) We can prevent the critical reaction from taking place. Now all teaching and education aim at giving ordered experience and knowledge; but the knowledge and principles needed to control the reactions in question are of slow growth, and are not to be found in the pre-adult stage. Therefore, since it is necessary to make our pupils realize the force of many truths connected with conduct, aesthetic and intellectual appreciation while their minds are still immature, we have to fall back on the second method.

The process of presenting truths in such a manner that a critical attitude of mind is not aroused in the recipient may be called *suggestion*. It has two forms: direct and indirect. For the effective working of both forms it is necessary that the teacher should inspire in his pupils a feeling of respect and affection, but this factor is more needed in direct than in indirect suggestion.

**Direct and Indirect Suggestion.** Direct suggestion takes place when the teacher, by a combination of character and technique, is able to present truths so forcefully that critical ideas in his hearers are arrested by the emotional tone that he produces. It need scarcely be insisted upon that teachers who are able to produce this effect are few in number; and even if they were more numerous it must be remembered: (1) That such teaching is effective in the long run only if it is infrequently given; since the most forceful presentation of truth ceases to be effective if it is overdone, and (2) that it may easily weaken the independence of the pupil and make him too receptive. We therefore have to fall back on *indirect suggestion* as the method by which truths of this kind may best be conveyed in the ordinary school routine. Its essential features are these: (1) The pupil is so much occupied with the details of the work in connection with which the truths are conveyed that he has no leisure to adopt a critical attitude, and consequently his contrariant ideas do not develop. (2) The suggestions that are made are identified more with the subject of study than with the teacher, and the pupil is often left with the impression that they are his own reflections. Consequently his *amour propre* leads him to esteem them highly. (3) If the pupil has been working hard at his lessons the ideas that fill his consciousness will be coloured by a feeling tone of strenuousness, and this will render it more likely that such ideas will find their expression in action.

It thus seems reasonable to believe that teaching connected with conduct is best given through the medium of a well-organized school subject. When



history is taught from the standpoints of causation and the investigation of documents, many moral lessons can be conveyed without much fear of contrariance. When the meaning of a Latin text is being unravelled, a short digression on conduct may even be gratefully received. The enthusiasm of the teacher for an English poem will be communicated more certainly if his classes have plenty to occupy them during the English hour. This doctrine of suggestion does not rule out the direct teaching of ethics. It maintains that, if instruction is given in the principles that underlie conduct, the subject matter should be treated scientifically, that the pupils' whole attention and efforts should be engaged, and that under these conditions suggestions as to the kind of conduct that is desirable may be given with profit. (See also CLASS, THE PSYCHOLOGY OF THE.) M.W.K.

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**SUMMER SCHOOLS.**—Probably the first summer school proper was that instituted by Prof. L. Agassiz, of Harvard, on Penikese Island, Buzzards Bay, Mass., in 1873. In December, 1872, he issued the "programme of a course of instruction in natural history to be delivered by the seaside, in Nantucket, during the summer months, chiefly designed for teachers who propose to introduce the study into their schools, and for students preparing to become teachers." This was the precursor of a large number of natural history schools, the most celebrated of which was the summer research school established, in 1888, at the Marine Biological Laboratory at Woods Hole, Mass. In 1878, a five weeks' course for teachers in the subjects of a general education, and in the theory and practice of their profession, was held at Martha's Vineyard, Mass. This was the first of the pedagogical summer schools now so numerous in America. In 1879, a six weeks' course for the study of idealistic philosophy was held at Concord, Mass., with the advice and co-operation of Emerson. This school lasted till 1887, and was the model of other similar institutions, in the list of whose teachers appear some of the greatest names in philosophy of the United States and Canada. From this time, holiday courses spread rapidly over the whole of North America.

**The Chautauqua Movement.** Alongside these schools of a more academic type, there had been developing an institution destined to attract thousands of students, and to give origin and name to hundreds of more or less similar meetings all over the world. On the shores of Lake Chautauqua, in the south-western part of New York State, John H. Vincent and Lewis Miller had conducted, in 1874, a Sunday School Assembly for the training of Sunday school teachers. This training, of ten days' duration, was unsectarian in character, and was combined with conferences, recreation, and entertainments. Soon literature, ancient and modern, was added, and the session lengthened. In 1878, a "Teachers' Retreat," for the training of teachers in secular schools, was established. In the same year, the Chautauqua Literary and Scientific Circle formed home reading circles and, in 1883, correspondence classes. In 1902, the organization received a charter from the State of New York under the style of the Chautauqua Institution. It is now a summer community of ten or twelve thousand members, in grounds dotted with hundreds of cottages and containing a hall

capable of seating 5,000 persons. For a short time it held the power by charter of granting degrees. In 1892, Dr. W. R. Harper, President of the University of Chicago, who had been in charge of Chautauqua from 1883 onwards, influenced by its success, added a summer term to the Chicago University terms. A large number of the American universities now hold summer schools properly so-called, some of whose courses lead to degrees, and have also imitated Chicago in adding a summer term to the University session proper.

To-day, America is covered with a vast network of vacation schools with an extraordinarily varied appeal. University students may continue their studies and researches; teachers and directors of education obtain training and certificates; lawyers, doctors, theologians, and librarians receive instruction in their professions; and students of philosophy, letters, art, and music come under the direct influence of the most eminent in these matters. Large provision is also made for industrial training.

**The Influence of the Universities on Summer Schools in Great Britain.** Meanwhile, summer schools had been growing up in Great Britain. But while America had added extension courses to the summer school, in England the summer school had its beginnings largely from the desire of centralizing and unifying the efforts of University Extension lectures (*q.v.*), and of bringing extension students into direct contact with authoritative teachers amid the inspiring historical and intellectual associations of ancient university towns. Dr. R. D. Roberts had, in 1885 and 1887, arranged for four miners from Northumberland to study at Cambridge; but the summer school proper commenced in England with the University Extension summer meeting arranged at Oxford in August, 1888, mainly under the influence of Dr. Percival (Bishop of Hereford), Dr. Michael Sadler, Dr. Paton (of Nottingham), and Mr. W. A. S. Hewins. About a thousand students attended. Since then, annual meetings arranged by the Oxford University Extension Delegacy and the Cambridge University Extension Syndicate have been held, usually either at Oxford or at Cambridge, though meetings have been held at London, Exeter, and York. The most distinguished professors and tutors of the universities take part in the instruction: the students are addressed by statesmen, great preachers, and eminent publicists and leaders of thought and action. Certain colleges are open to them for residence, and visits to the colleges and places of interest in the neighbourhood are arranged. Foreign students, chiefly teachers, have attended in large numbers, and are specially provided for in English and in phonetics. Conferences and social meetings give opportunities for exchange of ideas and growth of sympathy and understanding amongst students of various classes and nations.

The London University Extension Board has also arranged special holiday courses for foreigners in English Language and Literature, and in practical phonetics. In 1914, the Teachers' Guild commenced similar courses at Letchworth Garden City.

The Oxford Summer Meeting of 1903 formed "an association to promote the higher education of working men, primarily by the extension of University teaching." This became, in 1906, the Workers' Educational Association (*q.v.*), which, in 1910, organized summer classes.

**Chautauqua in Great Britain.** Another outcome of the University Extension Movement and the



influence of Chautauqua was the growth of the Edinburgh Summer School under Professor Patrick Geddes. In 1887, G. F. Scott-Elliott held a course in seaside zoology. In 1888, Professor Geddes commenced vacation courses in botany and zoology which developed a study of man and society, and led to the growth, in Edinburgh and other places, of summer courses, combined with conferences and exhibitions, for the reform of geographical teaching.

Still more markedly influenced by Chautauqua was the growth of the National Home Reading Union (*q.v.*) and its summer assemblies under the leadership of Dr. Paton. The Co-operative Holidays Association was affiliated, in 1896, to the National Home Reading Union. It provides holidays in various centres; but, although lectures on subjects of special interest are provided by certain members accompanying each party for that purpose, the emphasis is rather on recreation and social intercourse.

**Schools for the Study of Special Subjects.** The work of Otto Salomon (*q.v.*) at Nääs, in Sweden, has had a great influence on the summer school movement in England. In the early eighties, the question of the place of handwork in schools began to receive marked attention; and, in 1883, a small party visited Nääs. They were followed by others, who formed societies for the promotion of handwork in schools. The various societies joined forces for examination purposes in 1898, and formed the "Board of Examinations for Educational Handwork." In 1904, they amalgamated and became the Educational Handwork Association. In order to provide training for teachers various types of handwork schools under the auspices of the association have been established at different centres. These schools respond to the Nature Study and School Gardens movements, and teach general pedagogy and practical geography.

Several of the agricultural colleges offer instruction in Nature study, school gardening, and kindred subjects, usually to local students.

The need for the study of educational principles found special expression in summer schools conducted by the late Miss M. E. Findlay. These, like the Froebel Society's Summer School at Westfield College, London (1913), had special reference to young children. The West Riding Education Committee established a summer school for the more general study of principles and methods at Scarborough in 1904—transferred to Bingley Training College in 1912. Professor J. J. Findlay advised and co-operated in the earlier years at Scarborough; and, in 1915, was mainly instrumental in the foundation of the Uplands Summer School at Glastonbury, for the study of educational principles and the reform of school teaching.

To the revival of interest in folk songs and dances was due the summer session of the School of Folk Song and Dance at Stratford-on-Avon (1912) at the time of the Shakespeare Summer Festival.

Wales possesses a peripatetic school, managed by the Welsh Language Society, for the study of Welsh language and literature, and methods of teaching these subjects. The University College of Wales, Aberystwyth, Summer School (1909) has done much for the reform of geography teaching in Wales and outside; and gives instruction in librarianship, music, art, manual work, and rural science, together with general and experimental pedagogy. The Hall of Residence is open to summer school students.

**Holiday Courses Abroad.** For the study of foreign languages, the Teachers' Guild for many years organized holiday courses in France (Honfleur), Germany (Lübeck), and Spain (Santander). The London Polytechnic enrolled students for a vacation course at the University of Grenoble. A large number of the Continental universities, especially those of France and Switzerland, hold vacation courses in linguistic studies. The Alliance Française held its first summer school in July, 1894. Several French universities and other centres now work under its patronage, holding special courses for English students. The influence of Jena summer school on the study of pedagogy has been considerable.

Sweden and Denmark attract students of physical training.

The Board of Education subsidizes a large number of the summer schools, and conducts occasional special courses (*e.g.* in phonetics, physical training, etc.).

It is essential to remember that, although in many of the summer schools the work is very strenuous and the entertainment aspect comparatively limited, holiday courses do not and cannot profess to give complete instruction in their subjects. Their object is rather to serve as a guide and encouragement to further work, through the skilled direction of specialists and the interchange of ideas amongst students eager to learn and to communicate.

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**SUNDAY SCHOOLS, EDUCATION IN.**—A century and a half ago, when Sunday schools first appeared in England, it was necessary to use them, in part, for instruction in the elements of general education, such as reading and writing. But, a little later, the efforts of British schools and National schools, followed later still by the establishment of a State system of popular education, rendered this no longer necessary; and the sole object of the Sunday school became religious, and especially Biblical, teaching.

**The International Lessons.** At first each teacher was left to take his own course without guidance or assistance. A great improvement on this haphazard style of teaching was the establishment of the International Lessons series, first in the United States, then with extension to Canada, Great Britain, and other parts of the world. The uniformity of the series has given a feeling of breadth and brotherliness to Sunday school work the wide world over, and many cling to the system even after its serious faults have been demonstrated. A regular series of lessons, giving continuity to the teaching, is better than a chance, sporadic selection of Scripture. Moreover, the aim of the compilers was to cover the whole Bible in a *seven years' course*, utilizing all suitable passages, and thus to secure that no important part of Biblical revelation

should be ignored. This liberated the teaching from the narrowness which would have been inevitable had the teachers been left to choose their own favourite passages. Finally, it afforded scope for the production of "lesson helps," a process which has developed into vast publishing industries, not without their drawbacks, as some think, in a check upon individuality, but undoubtedly with very great advantage to fullness of information and correctness of Biblical exegesis.

Towards the end of the nineteenth century, drastic criticisms of the International Lessons system began to make themselves felt both in America and in England. These were formulated clearly and trenchantly a little later by Professor Peake. It was shown that the method was wrong both Biblically and educationally. It was unmethodical, ill-balanced, disproportionate; and its presentation of "snippets," though carefully selected from the whole field of Scripture, gave no idea of the historical development of revelation. The educational objection was not less serious. All classes above the infants, from the youngest to the eldest, were to have the same lesson at the same time; whereas the sound educational method would be to arrange the lessons in accordance with the capacity of childhood and youth in successive stages of mental growth. Although the uniform series is still continued in schools not prepared for a better system, it is being gradually superseded by more scientific methods. In the year 1915, the International Lessons Committee separated into two distinct committees, the American and the British each preparing two schemes of lessons: one uniform, the other graded.

**New Conditions.** A number of new conditions have combined to demand new methods of teaching.

1. **THE ADVANCE OF POPULAR WEEK-DAY EDUCATION.** The Sunday school teacher to-day is confronted by a very different class of scholars from that with which his predecessor was familiar. They are taught during the week in accordance with modern educational methods, and on Sunday many are still treated to the old-fashioned dame school methods. It is not surprising that schools in this condition flag and fail.

2. **THE SCIENCE OF CHILD PSYCHOLOGY.** This is fundamental to a right treatment of childhood. On it depends the construction of a sound system of teaching.

3. **THE SPIRIT OF INQUIRY.** Questions once confined to the college class-room are now openly ventilated in the home and in public, and young minds are eager for light on them.

4. **THE PROGRESS OF BIBLICAL SCHOLARSHIP.** Scholarly research and scientific methods of study have combined to throw a flood of light on the Bible. To ignore this, and carry on our lessons in the methods of the pre-scientific age, is to deprive the new generation of its birthright.

**Graded Schools.** In view of these considerations, new Sunday school methods corresponding to their requirements are being inaugurated among the more progressive schools. These began with the "Blakely Series" in the United States, America again appearing as the pioneer of improvement in Sunday school teaching. The Theological Faculty of Chicago University has been foremost in promoting this movement; and, by their writings and practical efforts, Professors Ernest Burton and

Shaler Matthewes have done much to expound and propagate them. At first, there was some difference of opinion between the International Lessons Committee and the workers for the change known in England as "Sunday School Reform"; but, in course of time, this committee adopted the essential principles of the new method. In the first place, the English section of the committee elected into its membership four theological professors. Hitherto, the first draft of the lessons had always been drawn up in America, where, it must be remembered, the series was started. Now it was agreed that for a cycle of years this should be drawn up in England, and the four professors were appointed to sketch a scheme and submit it to their fellow-English committee-men. Then, while arranging still to continue the uniform series (but with an improved selection and arrangement of passages), the International Lessons Committee decided to issue an alternative series of lessons, which were to be graded. Divergent views as to the amount of grading desirable and practicable led to the American and English sections of the committee abandoning the attempt to draw up the new lessons in concert. But, while in the United States a much more elaborate scheme of division has been adopted than in England, the essential principles are identical in both cases. Under a graded scheme of Sunday school teaching, the scholars are divided up into completely separate sections, meeting in separate rooms. The young children of the Primary Department have a species of kindergarten teaching, with one head teacher and a number of young helpers, who meet her in the week for the preparation of the next Sunday's lesson and assemble on the Sunday under her superintendence, when each of them will have about three little children in a group for ten minutes or so, to tell the story of the lesson, after which the head teacher will question the whole class and perhaps call up one or another of the children to perform some illustrative sand or clay modelling. The junior and intermediate sections of the school have more direct Bible teaching, but with much for individual members to do in looking up references, supplying illustrative information, map-making, etc. The seniors have their Institute, not mixing in any school exercises with the juniors, but assembling in their own hall for the opening and closing worship—the young men on one side and the young women on the other, and dividing up for Bible class lessons in separate class-rooms. The essence of the new method of teaching, especially as this is worked out in the Primary Department, is found in the principle, "No impression without expression"; and the scholars are led to do something in action, or to produce something tangible, that shall express the ideas they are receiving. The newest effort is to apply this principle throughout to the junior, intermediate, and higher grades.

**Teacher Training.** Improved methods of teaching demand improvements in the equipment of the teachers. The old custom of inviting any willing helper and assigning a class there and then, without any question as to teaching capacity and fitness for the work, is obviously futile. It is essential that the teacher should be trained both in the art of teaching and in the subject-matter of Bible knowledge and Christian truth. For many years the Sunday School Unions have promoted teacher-training classes and literature expressly prepared for the enlightenment of teachers, as well as lesson

helps. But for the universal effective training of teachers, arrangements have to be made in each school. In some large American schools there are university-educated superintendents appointed to undertake this work. As yet these are exceptional, and for the most part the teacher-training has to be undertaken by the minister of the church or by a local schoolmaster. It is being increasingly felt that the universal extension of teacher-training is the most important development of Sunday school method now needed, and also that there is no branch of the Church's work to which the minister can more effectively devote his energies than this education of a band of disciples who shall be his lieutenants in the field of service among the young. To fit him for the task, he, too, requires a training in educational method as applied to the Sunday school; and this training is now being given in some of the theological colleges to their students. There is a "Training Institute for Sunday School Workers," which is interdenominational, at "West Hill," Selly Oak, Birmingham, the curriculum of which includes child study, Bible study, and the teaching of practical Sunday school work.

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**SUPERANNUATION ACT, 1919, EDUCATION (SCOTLAND).**—The superannuation scheme drawn up under the above Act marks a considerable advance on that under the Act of 1908, and forms a fitting complement to the Minimum National Scales of Salaries. It applies to all teachers giving whole time service "in connection with education in Scotland" as recorded by the Department. Its application, therefore, is very wide, benefiting not only teachers in day schools but those in training colleges, central institutions, reformatory or industrial schools; directors of education, organizing teachers under education authorities, and generally teachers "in any other capacity approved by the Department." It is non-contributory.

A teacher *must* retire at the age of 65 (unless the Department shall otherwise determine) and *may* retire at 60; or earlier if he has become permanently incapable, owing to infirmity of mind or body, of being an efficient teacher. In general, however, no retiring allowance is payable unless a teacher has given at least ten years' service.

The annual retiring allowance is one-eightieth of the "pensionable salary" for each completed year of service, with a maximum of forty-eightieths of such salary. There is also payable a lump sum equal to one-thirtieth of the pensionable salary for each completed year of service, with a maximum of forty-five thirtieths. The pensionable salary is the average salary for the last five years of service, but in the case of a teacher who retires within five years after 1st April, 1919, the average amount of salary during the period of service after this date is reckoned as pensionable salary. As the increases of salary due to the institution of the Minimum National Scales date from 16th May, 1919, it will be seen that teachers retiring after this date will receive an augmented pension based on the increase

in salary. For teachers who have retired before 1st April, 1919, provision is also made for an augmentation of the pension granted under previous schemes.

Under the Act of 1908 the superannuation scheme was a contributory one, and provision was made for the return of these contributions to existing teachers. Contributions made under the Superannuation Act of 1898, however, are not returnable, but the deferred annuity represented by such contributions will be paid on the teacher reaching the age of 65 as originally provided.

The scheme makes provision also for certain cases other than normal, e.g. where a teacher is incapacitated before giving ten years' service but after one years' service, or where a teacher dies after five years' service before completing ten. In the case of a retired teacher who dies before receiving an amount equal to his pensionable salary the difference may be paid to his legal representative.

The number of years of service to be counted is, as a rule, that of service in Scotland, but in certain cases service in England as a teacher or service as an established civil servant may also be counted. Service as a teacher in *Ireland* is not provided for.

J. W. B.

**SUPERANNUATION ACTS, TEACHERS'.**—The first legislative enactment dealing with the superannuation of teachers was the Act of 1898, which made provision for certificated teachers in England, Wales and Scotland. By subsequent adjustments the provisions of the act were restricted to certificated teachers working in public elementary schools in England, Wales, the Isle of Man and Jersey, such service being termed "recorded service."

The acts of 1898 and 1912 created a unique pension scheme. The contributions were paid on a flat rate, the annual premiums only differing according to sex. The pensions, also paid on a flat rate, were drawn from a deferred annuity fund supplied by the teachers' contributions and from monies allowed by Parliament. The teachers' contributions were invested in Consols and Irish Land Stocks. The War Loan Bill enabled the money to be turned into war loan script, and so any deficiency due to the depreciation of consols was avoided.

Annuities were paid after the age of 65, and before only under special circumstances, but no allowance was ever awarded before that age, and then only if the recorded service equalled half the number of years between the date of certification and the age of 65. Where a teacher died before that age nothing was paid.

All teachers certificated after April 1st, 1899, called "future teachers," were compelled to contribute to the deferred annuity fund when in recorded service. To teachers certificated before then, joining was optional. Those who joined were called "existing teachers." Both "future" and "existing" teachers counted recorded service from the time of joining. Existing teachers, then, were entitled to a smaller annuity. This difference was adjusted by allowing them a small increase for every year of recorded service.

The power of the Board of Education to increase the premiums at any rise in the average salary of teachers was withdrawn by the Act of 1912, and the annual premiums fixed at 72s. for men and 48s. for women. These amounts, giving

exact multiples of twelve, facilitated collection from the monthly salaries.

The amount of a teacher's annuity was made up of a series of annuities calculated on each annual contribution, according to the age of the teacher at the time of payment, and based on a table approved by the Treasury.

The Superannuation Act provided disablement allowances. These were only granted on the certificate of a doctor nominated by the Board of Education that the applicant was permanently incapable of being an efficient teacher, and if the applicant was in pecuniary need and had completed ten years' recorded service. The allowance was reviewed every three years, but not after the age of 65. It could not exceed the possible pension which the teacher was entitled to receive after the age of 65.

By the Elementary School Teachers' War Service Superannuation Act, 1914, any time occupied in war work could be counted as recorded service if the contributions were paid.

Many municipal authorities, after the Elementary Education Act of 1902, included teachers in the superannuation scheme for their officers, and formed new complementary municipal schemes. Following the example set by the London County Council many made their schemes applicable to teachers in non-provided as well as in provided schools.

At the age of 65 a teacher's certificate was almost invariably withdrawn. If an extension was allowed, no superannuation allowance was paid, no recorded service could be made, no premiums were accepted, and the pension given upon the withdrawal of the certificate was unaltered.

The whole system of deferred annuities as here described was replaced by a non-contributory pension scheme in 1918. (See PENSIONS FOR TEACHERS.)

**SURVEYING.**—To perhaps most people, even a good map represents merely a glorified finger-post, or a policeman to point the way. It enables the expert, however, not only to visualize the configuration of the terrene, but also to make intelligent guesses at the climate, the distribution of population, the industries, the flora and fauna, and even the history of the area. To him it has become a communicative guide.

*Map-reading*, as here outlined, forms an important feature in the modern teaching of geography, and, undoubtedly, one can acquire much skill in the art, without any knowledge of the work involved in the production of the map. The term *Surveying* is used to include the taking of the measurements and observations necessary for this purpose, and the delineation of the measured features. To him who knows something of surveying, the map is no longer a mere guide; it has become a friend whose secrets he shares; and this fact lends new interest and greater zest to his map-reading studies. Clearly, moreover, one who has watched, say, a plane-table survey grow as the result of his own work is thereby assisted readily to extract the more obvious information from any given map.

The importance of map-study in the curriculum of any school or college is self-evident, and a practical knowledge of map-making certainly helps in this study. Some knowledge of surveying is now required for geography diplomas at the universities.

The educational value of surveying does not

end here. The subject is in itself both interesting and salutary; the surveyor must be ever on the alert to miss no feature that should be shown, and so his powers of concentration and observation are developed; the taking of clear field notes inculcates neatness and accuracy; the student gains self-reliance as the work proceeds; the subject lends itself to simple investigations, such as surveying the same ground by different methods and comparing the results with respect to their accuracy and the time taken in carrying them through, testing the reliability of the instruments, etc. These give the impression of real work, and help to develop the critical habit, while the results obtained *may* become important.

Unfortunately, work of this kind is often "pushed out" by the hateful overcrowding of the syllabus. Thus it is impossible to recommend that surveying should form part of the regular school course, notwithstanding its high educational value. But surveying may well be an optional subject, to be taken by those whose mental powers enable them to learn more, in the time available, than the syllabus provides.

It must, of course, form part of the regular curriculum in universities and in training colleges for civil engineers, but this aspect of the subject need not be further considered here.

**The Teacher.** The teacher should, necessarily, have had practical experience of the work; but eminence as a surveyor does not guarantee fitness for teaching. He should have received some training as to the purpose and method of his teaching (that there may be general uniformity in education) and he must both know his subject well and like it.

Badly taught, surveying is as likely to encourage careless and slovenly habits as any other subject.

**The Course.** Given the proper teacher, it is unnecessary and inadvisable to lay down a hard and fast syllabus. But probably all would agree that even the most elementary course should include a survey with the plane-table and a chain survey with offsets. In a simple chain survey, with a chain, say 20 ft. long, a party of eight (two chaining, two taking offsets, and four booking) can be kept busy at a cost of a few shillings. The result depends entirely on the workers, which is often far from true when use is made of cheap compasses, plane tables, etc.

The chief difficulty in most school buildings and grounds lies in the representation of relief. Much can be done, simply, with a plane-table regarded as a level surface (along which we may sight) and a graduated rod (which the teacher can make) to take readings to important points. The results will show the idea, even if they lack accuracy. Heights of steps, etc., can also be measured and marked on the drawing.

It is desirable that the student, in such cases, should be in the hands of his teacher, not for a few stated hours per week, but for his whole time during the period of the course. (Indeed, a similar principle might, with advantage, govern all university courses, and no student should take more than two subjects at one time.)

Unless the course is merely an elementary one, it should be in two sections, of which one should be attended by all students of the subject, whilst the second should be attended only by those who wish to specialize in surveying and are qualified to attend it without overcrowding their time-tables.

The work in this section should be mainly individual, consisting either of simple investigations or of independent study under the guidance of the teacher.

M. T. M. O.

**SURVEYORS' INSTITUTION, THE.**—Incorporated by Royal Charter in 1881, this was established in 1868, and has a membership of over 5,400. It was established to "secure the advancement and facilitate the acquisition of that knowledge which constitutes the profession of a surveyor," and "to promote the general interests of the profession, and to maintain and extend its usefulness for the public advantage."

The institution consists of four classes, viz.: Fellows, Professional Associates, Associates and Honorary Members, with a class of students attached.

A *Fellow* must have qualified by practical knowledge of surveying for five years in a responsible position, and by passing the institution's examinations. A fellow may use the letters F.S.I. after his name and may describe himself as a "Chartered Surveyor."

A *Professional Associate* must be a surveyor by profession, and must have passed the examinations. He may use the letters P.A.S.I. and may describe himself as "Professional Associate Chartered Surveyor."

An *Associate* need not be a surveyor by profession, but his pursuits must qualify him to unite with surveyors in the advancement of professional knowledge.

A *Honorary Member* must be a person of position, or experience, or eminence in science, but not engaged in practice as a surveyor.

*Students* (not under 18 years of age) qualify by passing the preliminary examination. Candidates who pass the intermediate examination may enrol themselves as probationers and become entitled to certain privileges for three years after. All these classes pay annual subscriptions, and in the case of the first three also an admission fee.

**Examinations.** The institution holds the following examinations—

*Preliminary*, for admission of students. Subjects: arithmetic, elementary algebra, English history, composition, geometry, and one of French, German, Latin, botany, geology, or chemistry. The matriculation examination of an English university and a few other similar examinations may be accepted as a substitute for the preliminary examination. Successful candidates may be enrolled as students of the institution and remain such until they are 21½ years of age.

*Intermediate.* Open to students, and also to others over 19 years of age who satisfy the institution as to their training and professional experience.

*Final.* Open to candidates who have passed the intermediate, and who must be at least 21 years of age.

Both the intermediate and the final examinations are strictly technical and professional, and the subjects are divided into three sections, viz.: (1) Chiefly Land Agency, (2) chiefly Valuation, (3) chiefly Building or chiefly Quantities.

Copies of the syllabus of subjects, lists of textbooks recommended, and a specially compiled set of example papers set at the examinations can be obtained from the secretary.

There is also a Direct Fellowship examination for candidates over 30 years of age who have been

in practice on their own account for at least five years. Numerous prizes, some of great value, are offered to the most successful candidates in the examinations, as well as scholarships varying from £50 to £80 per annum for three years at the chief universities of Great Britain. Full particulars may be obtained from the secretary, 12 Great George Street, Westminster, S.W.1.

**SUSPENSION.**—The withholding of rights or privileges for a limited time. (1) A child of school age has a legal right to education in a school supported by state funds, and so long as such a child conforms to the rules and regulations of the education authority this right cannot be withheld. But suspension, as a mild or temporary form of correction or as a discretionary measure, may be the result of violation of laws and regulations by insubordination, lack of cleanliness or moral delinquency which may cause the offender to be a source of injury or danger to the school or to the other pupils. (2) A teacher is liable to suspension for similar offences. The suspension in secondary and higher schools is at the discretion of the principal of the school, who in some cases may make it absolute. Less power is given to head teachers of elementary schools, and managers are usually consulted if such a punishment is proposed. (3) The Board of Education has the power to suspend schools and school authorities in cases of violation of Education Acts or Departmental Regulations.

**SUTTON VALENCE SCHOOL.**—(See WESTMINSTER, THE EDUCATIONAL CHARITIES OF.)

**SWAHILI, THE TEACHING OF.**—(See ORIENTAL EDUCATION IN GREAT BRITAIN.)

**SWANSEA TRAINING COLLEGE.**—In 1845 a Normal School was founded privately at Brecon to train women-teachers for service in Welsh schools. The principal transferred the school to Swansea in 1849, and for many years it was conducted under voluntary management. In 1871 the British and Foreign School Society decided to establish a Training College for women in Wales, and, selecting Swansea as a suitable place, took over the buildings of the Normal School for Wales. The college was opened with 38 students, but by purchase, building, and renting, accommodation was provided for 112 students. From 1872 continuous efforts were made to raise funds for building a new college. The Government ultimately offered to grant to public authorities three-fourths of the funds necessary for building, and in order to secure a new college, the British society decided to hand over the college to the Swansea Education Authority. The education authority acquired a site and proceeded with the erection of the new premises, and as soon as these were completed the college was formally transferred to its care—23rd June, 1913. David Williams, the principal from 1872 to 1892, had been the Society's Inspector of Schools for South Wales. He was succeeded by David Salmon, who remained principal at and after the transfer. The students of Swansea College are mostly drawn from Welsh schools, and generally obtain appointments in the Principality when their college course is ended. They are trained for the Board of Education Certificate Examination. The British Society has, since

the transfer, taken a certain rent charge from the Swansea Education Authority in respect of the building, and has devoted it to providing bursaries for students at the college.

**SWAZILAND, EDUCATION IN.**—Swaziland has a population of about 110,000, of whom 1,700 are Europeans. Many of these Europeans are farmers, and these occupy and own much of the land. The natives are of Zulu type, and show little eagerness for education. They are backward in cultivating their lands, and live largely on the money earned by their young men in the gold mines.

The following European schools are maintained or subsidized by the Government—

District.	School.
Mbabane	Mbabane Bremerdsdorp.
Hlatikulu	Ferreira Station Mantambi Hluti Mooihoek Nieteggun.
Mankaiana	Driefontein.

The Mbabane school has a boarding department, and prepares pupils for the Cape Matriculation; the others are elementary.

There are several mission societies working amicably together for native education, and these receive grants from the administration. The larger missions are the Church of England, the Scandinavian Mission, the South African General Missionary Society, and the Wesleyan; the smaller ones are the Roman Catholic, the International Holiness Mission and the Pentecostal Church of the Nazarene. Some progress has been made in delimiting spheres of influence, and in apportioning the various branches of mission work; but the schools are generally small and the natives apathetic.

F. H. D.

**SWEDEN, EDUCATIONAL SYSTEM OF.**—The elementary school (*Folkshkola*) in Sweden is regulated by the law of 1897. The parish is, as a rule, the school district; and the vestry meeting elects the four members of the school board, of which the clergyman is *ex-officio* chairman. The school years are from 7 to 14, the age of confirmation; and the school consists of a two years' infant school (*Småskola*), followed by four years of an ordinary *Folkshkola*. In addition to the usual subjects, Sloyd and domestic economy are frequently taught as optional subjects, and occasionally a foreign language also. Of the 16,821 *Folksholor*, higher and lower, in 1918, 1,037 were ambulatory schools held in thinly populated districts. Thirty years ago, such schools were three times more numerous than now. There are 15 State training colleges—9 for men and 6 for women—besides 2 private colleges, equally qualified, for women. The course extends over four years, and the instruction is gratuitous. A fully-qualified teacher in a *Folkshkola* (before the war) had an initial salary of £50, rising in fifteen years to £75, to which house, wood for firing, and a plot of land were added. This salary was for eight months' work. Any extra work was paid at the same rate, and the pension was 75 per cent. of the salary on the higher scale. In the larger towns, salaries were appreciably higher.

Thirty years ago there was one teacher for 54 children; now there is one for 30. The results may be seen when men do their Army service, only one in a thousand being unable to read, and two in a thousand unable to write. The aggregate cost of the *Folksholor* in 1918, inclusive of training colleges, people's high schools, and schools for abnormals, amounted to about 51,000,000 kronor (£2,833,000), of which the State defrayed 34 per cent. This cost has increased threefold in the last twenty-five years.

**Higher Education for Boys.** Sweden organizes higher schools for boys in one way, and those for girls in quite another. Higher education is regulated by the law passed after very full inquiry in May, 1904. The State supply of higher schools in Sweden, which has a population equivalent to the united population of Denmark and Norway, now comprises thirty-eight complete nine-year schools, whose first class, consisting of pupils from 9 to 10 years of age, is based on the third year of the *Folkshkola*. In the first five years of the school, no dead language is taught, and all pupils have a common time-table, whatever their ultimate destination. The great bifurcation comes before the sixth year, when the larger number begin their twelve months' work for the *Realskolexamen*, preparatory to entering upon business life; whilst the rest enter the first class of the four years' gymnasium. The *Realskolexamen*, which, in Sweden, is of quite recent origin (1905), does not serve as a portal to the gymnasium, as in the sister countries; it is a thing apart. On passing from the *Realskola* to the gymnasium, the pupil has to choose one of three lines—the classical, semi-classical (Latin but no Greek), or modern. Formerly, most of the students were on the first two lines, but in the last ten years those on the modern line (the mathematics and science line) have exceeded the first two put together. At the end of the four years of the gymnasium comes the *Student-examen*, admitting to the university.

There are, in addition, 21 six-year schools (*Realskolor*) ending with the *Realskolexamen*; and (only since 1904) 18 *Samskolor* (co-education schools), which in essentials conform to the *Realskolor*. To these, since 1910, have been added 30 communal *Mellanskolor* (middle schools). These are four-year *Realskolor* for boys and girls, built on the top of the *Folksholor*, and found chiefly in industrial centres which have no State secondary school. They also have the *Realskolexamen* as their goal.

The earliest of these State schools date from the Middle Ages, but were re-organized in the time of Gustavus Adolphus. They are housed in imposing buildings, manned by highly-efficient trained staffs; and the fee, formerly almost a nominal one and still very small, is, where necessary, altogether remitted. This made the competition of other schools almost an impossibility, and State schools were thus left without any sufficient impulse to adapt themselves readily to changing requirements. The remedy was sought by the institution in 1828 of a State experimental school, *den Nya Elementarskola*; and still more, in later years, by giving to private recognized schools a much higher subvention than in Denmark or Norway. Eleven or twelve of them have been fertile in the initiation of new forms of organization, in the introduction of practical subjects in the service of education and of new methods in the teaching of old subjects (see *Educational Times*, Dec., 1909).

**Higher Education for Girls.** With regard to the higher education of girls, the State is directly and



solely responsible for two institutions only—the Higher Seminary for Women Teachers in Stockholm (dating from 1861 and costing £4,000 to £5,000 a year); and its associated normal school, which consists of 3 preparatory classes, 8 ordinary classes of a year each, and a continuation class, and is maintained for the most part by school fees. In 1873, and again in 1874, a proposal was made that State schools should be established for girls as for boys. But it was rejected, and a small grant was made instead to such existing schools, whether private or communal, as had already made their mark. This grant is given on condition that an equal grant be made by the *commune* or other local source. Of such schools, there are now 80 earning from the State more than ten times the grant of 1874 and teaching 21,000 pupils, over three-fourths of the number in the State schools for boys. They are not controlled by any stiff unyielding code, but are a free imitation of the Normal School in Stockholm, which the teachers were familiar with in their three years of training. There is thus a strong family likeness in them, but there is also constant diversity. "Some make a point of preparing their pupils for the University or for the higher Seminary; another trains teachers in household economy; a third will give more than usual attention to foreign languages or to music and art; a fourth grafts on to its higher classes a training department for higher-school teachers. The imitation has, perhaps, gone just as far as is suitable for the school and the neighbourhood, and with such variations as the locality demanded." The schools are not obliged to take any external examination whatever, not even the *Realskoleexamen*, for which their courses might easily be adapted; for, in 1909, it was determined that whenever a school could show that its eight classes were equivalent to those of the Normal School in the Capital, its own leaving certificate should have the same effect as the *Realskoleexamen*. Inasmuch as the parent's contribution (£7 a year, perhaps, on the average) is as great as the united contribution of State and *commune*, the school depends more on the home and comes nearer to it than any purely State school can do. It would be difficult to find a school which, on the one hand, keeps in effective touch with central State and local authority; and yet, on the other, is so little restricted in its freedom of development, and is in such close touch with parent and home. The sums expended on these schools by State and *commune* together can hardly be more than one-sixth of the amount expended on the State schools for boys.

**Inspection and Control.** Until 1904 the oversight of all schools was in the hands of the Church. In that year a Higher Council (*Överstyrelse*) for Secondary Schools, consisting of five experts, was formed for the appointment of teachers, the work of inspection, and other administrative duties; and, in 1913, a corresponding body was instituted for the primary schools. In 1920 these were united under the name *Kungl. Skolöverstyrelsen*, a third department being added at the same time for the oversight of the vocational schools.

The University of Upsala was founded in 1477, that of Lund in 1668. The Carolinska Institut in Stockholm grants degrees in Medicine only. The High School in Stockholm (1878) and that in Gothenburg (1891) are of university rank, but not yet completely organized, and grant degrees only in some faculties or parts of faculties. (See also OTTO SALOMON.)

J. S. T.

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**SWEDENBORG ON EDUCATION.**—If we are to accept Dr. Johnson's definition, "to bring up," as a synonym for education, Emanuel Swedenborg was an educationist in the fullest sense of the word. To understand Swedenborg's position, we have to bear in mind that he regards human beings as essentially spiritual beings. Man is not a material being possessing a soul which will pass away when the earthly life is ended; he is a spiritual being possessing a material body, which he will cast off when it has served its purpose in the material world. Even here, Man has a spiritual organism, possessing senses to which the natural senses correspond. It is also necessary to understand his great doctrine of "Uses," concerning which he says: "Angelic life consists in use"; "There can be no life in what is useless"; "The useless can have no life"; "The knowing of knowledge is for the end of use." "Being of use" he defines in the sentence, "He who is in love (*i.e.* in the love of the Lord and the neighbour) is not delighted in knowing, but in doing what is good and true." Education is something that commences in infancy, if not on earth, in heaven. True education is not a mere filling the mind with either facts or fancies concerning material things; it is the training of the soul in will and understanding to live in such relations to God and Man as to be prepared to receive truth in God. All truth is from God, coming from him into the minds and hearts of men. There is no such thing as truth arising from Nature. All truth, even about natural things, comes from above, as does all life. He says that "A man first imbibes truths scientifically, then rationally, and at last makes them (part) of his life"; further, that "A man of himself cannot do anything that is good, nor think anything that is true"; again, "Truths with men are appearances of truth from the fallacies of the senses." Another famous saying of Swedenborg's is, "A man who is in evil and the falsity from it cannot be called rational, wise, and intelligent . . . their willing is only coveting, and their understanding is only knowledge." Again he says that "The natural (*i.e.* the unregenerate) man, regarded in himself, has a material imagination, and affections like those which belong to the beasts. But the genuine faculty of thought and imagination comes from the internal or spiritual man, when the natural man sees, acts, and lives from it." Swedenborg draws a clear distinction between the knowledge that enters the memory and that which enters the understanding; the former he calls "scientific," and the latter he terms "rational."

But knowledge that is only scientific is not really truth—it is not in reality educational in the true sense of affecting that which is truly human. It is only when those knowledges which Swedenborg calls "scientifics" are rationally understood, and are thus elevated into the understanding, that they become of any educational value whatever. True education begins with the cultivation of the memory in regard to things that come within the range of the physical senses, which is the external memory. The things that first enter into the memory abide for ever. This is the foundation idea in Swedenborg's

doctrine of "Remains," a doctrine well worth the attention of all educationists who desire to understand the philosophy of a truly human development of the human mind on the lines of true spiritual life. The infantile memory is, as it were, the opening chapter of the Book of Life—the book in which every man writes the record of his character legibly and indelibly.

The first conference (1789) of the "Receivers" of the doctrines taught through Swedenborg took up the question of the education of children, and members were requested to make inquiry and report upon any children whom their parents or guardians wished to have educated by a tutor approved and appointed by the New Church. Sunday schools were started in various parts of the country, a boarding-school was opened at Woodford (Essex), and day-schools for infants and children were established in London, Birmingham, Manchester, etc. The day-schools of the denomination held, for many years, a high position among elementary day-schools, but were gradually closed after the passing of the Education Act. The New Church College at Islington was founded for the training of ministers, and also for the general education of other students, but this latter work has now been abandoned.

J. DEANS.

#### SWEDISH SYSTEM OF GYMNASICS, THE.—

The Swedish system of gymnastics was originated by Peter Henry Ling (1776-1839). The Royal Central Institute of Gymnastics in Stockholm was founded by the Swedish Government in 1814 for the purpose of carrying out his system of training in educational and medical gymnastics, and has ever since been maintained as the chief gymnastic training school for teachers in Sweden. The essential principles of the system, as it is practised to-day, are those laid down by Ling; and it comprises the best in gymnastic practice from classical times to the present day. Ling saw that a careful study of the physiology and anatomy of the human body was the necessary basis of gymnastics. He aimed at health as the most perfect development of all the powers of the body. Civilized conditions, especially in schools, tend to hamper the natural free movements of childhood. A regular system of gymnastics is needed largely as a corrective to this. So long as the child is free to exercise by play, no gymnastics are necessary, but such freedom is of short duration in the life of the modern child. Hence the system is largely corrective, and as such does not deal with normal types only. Medical gymnastics is as important as educational. Both are based on movements adapted to the condition of the body, and many of the exercises of medical gymnastics are borrowed from the educational side. Every exercise has a definite effect on the body and is practised for that alone; each has three important parts: the point from which it starts, the movement itself, and the final position at which it stops. In order to produce exactly the intended result, each part must be carefully observed. Apparatus is used in some exercises, but chiefly to give support to different parts of the body during the movement; in free standing movements, outside aid is not required. No portion of the body is neglected, and special attention is paid to the development of lungs, heart, and chest. As the exercises are intended for their effect on the body, not on the onlooker, mechanical drill is not encouraged; rather, the

special ability of each pupil is taken into account. The gradual progress of the exercises from the simple to the most difficult is a vital part of the system. Not only is the benefit of an exercise sacrificed when it is taken in its wrong place, but active injury may be done where a movement has not been gradually prepared for. Hence the importance of entrusting the physical training of children to qualified teachers only.

Swedish gymnastics in England are often taught in conjunction with English outdoor games, and no more complete physical education than this exists. The splendid health of body which forms so conspicuous a result of the training is accompanied by moral development of even greater importance. Such qualities as courage, promptitude, decision, capacity for organized and unselfish action, called forth in games and gymnastics, go far towards making the good citizen.

M. H. M.

**SWEDISH, THE TEACHING OF.**—(See SCANDINAVIAN LANGUAGES, THE TEACHING OF.)

**SWIFT, JONATHAN** (1667-1745).—Born in Dublin, though of English parentage, and educated at Trinity College, Dublin, he became secretary to Sir William Temple. He was ordained in Dublin in 1694, and held various minor appointments until, in 1713, he became Dean of St. Patrick's. He visited England several times and made the acquaintance of leading men, writing pamphlets in support of the Tories. From 1727 he lived in Ireland, and in 1740 his reason gave way. His last years were miserable, with periods of violent lunacy. His death was deeply lamented by the poor of Dublin, to whom he had endeared himself by his championship of Ireland and by his philanthropic generosity. Swift's writings were to a great extent ephemeral and devoted to the political exigences and animosities of the time, and what he has left remains as a valuable body of historical, social, moral and political instruction. His best known work, *Gulliver's Travels* was written to satirize the petty meannesses of the court of Queen Anne. In early life he wrote *The Battle of the Books* (1697) on the violent controversies of the day regarding the relative merits of the ancient and the modern learning; and *A Tale of a Tub* (1704), a severe satire on the three great religious parties. His own doings, and contemporary history in England during the years 1710-1713, are given in his *Journal to Stella*. His chief contributions to literature on education are short papers, including *An Essay on Modern Education*, and *A Proposal for Correcting and Improving the English Tongue*. The subject of the former is the neglect of real education among the nobility. "Education," he says, "is always the worse in proportion to the wealth and grandeur of the parents," and in consequence arose the necessity of introducing new men into the chief conduct of public affairs. Swift gives many examples of leading men, not of the highest rank who had held the highest offices as a result of their learning, including Godolphin, Clifford, Harley, St. John, Addison and Walpole, and thinks that some additional care should be employed in educating the sons of the nobility. He deprecates the practice of employing French tutors in the houses of noble families, and still more the habit of mothers who instructed the tutors to spare their pupils and not to keep them too long poring on their books. At Oxford and



Cambridge young men of high rank learnt nothing but to drink ale and smoke tobacco, to dance and to fence, and many were not sent there at all lest they should become pedants. In regard to the English language he advocated the establishment of an authorized standard of spelling.

**SWIMMING BATH MOVEMENT, THE.**—The Swimming Bath Movement may be traced back to the Roman Empire, when Rome and its environs could count some 850 public baths. Immense sums were spent on these, and the Baths of Diocletian could accommodate 3,200 bathers at once.

After the fall of Rome, swimming, as an art, seems to have declined; but, during the past seventy years, there has been a steady forward move. The Baths and Wash-Houses Act of 1846 supplied the first great impetus to the movement in England; though, prior to this, in 1828, the Corporation of Liverpool had opened the St. George's Pier-Head Baths, now closed. In 1878 an Act was passed authorizing the construction of Swimming Baths; and municipal returns prove clearly the appreciation of the public. London and Liverpool led the way; and, as soon as it was manifest that the building of public baths, though philanthropic and non-commercial in origin, could be converted into a remunerative undertaking, other towns throughout England adopted the system. In 1906 there were 225 towns with Municipal Baths; in London, between 1852 and 1916, the number of bathing establishments increased from seven to forty-four.

In America, municipal provision of swimming pools was a late institution: it was left to private enterprise in the form of "The People's Bathing and Washing Association." New York's first bath was opened in 1870. By 1889 there were fifteen. The first provision for municipal baths, such as had existed in England since 1850, was made in 1889. To-day municipal pools are found in almost every city. On an estate at Lake Forest, Illinois, a magnificent pool has recently been completed overlooking Lake Michigan.

New South Wales possesses the most famous swimming-bath in the world, the Domain Bath at Sydney, which is 110 yds. long; England comes second with its sea-water bath, 100 yds. in length, at Southend-on-Sea.

The building of baths, however, was but the beginning of progress. Clubs which met at the various baths banded together to form a union. The first congress was held in 1869, and from that originated the London Swimming Association, which by 1874 had grown into the Swimming Association of Great Britain. In its efforts to protect the best interests of swimmers, the great quarrel of Amateur *v.* Professional arose. This caused the secession of the famous Otter Club in 1884, whence sprang up the Amateur Swimming Union. In 1886 the A.S.U. and the S.A.G.B. united as the Amateur Swimming Association.

**Swimming in Schools and Colleges.** A deputation from the A.S.A. was sent to the Education Department, and in 1891 swimming was officially recognized as a subject of instruction in the elementary schools of England. To aid the movement, the A.S.A. offered the London School Board the services of about 100 honorary instructors. In 1894, the London Schools Swimming Association was founded, and by awarding

certificates, prizes, and trophies, brought the art of swimming and life-saving to a high standard of excellence. Many baths committees were persuaded to grant scholarships.

In 1890 a New Zealand Swimming Association was formed and immediately undertook the task of persuading the Education Committee of the necessity for organized instruction in swimming. There are similar associations in New South Wales and Canada.

In 1913 the A.S.A. put into action a "Scheme for the encouragement of swimming." The objects of the scheme are—

1. To stimulate in every possible way the teaching of swimming to school children.

2. To offer incentives to proficiency by the creation of swimming scholarships.

This led to two valuable gifts for young people: free passes to public baths, and free membership of affiliated clubs for professional coaching. In the North of England, free tickets were put at the disposal of the A.S.A. by local bath authorities, Sheffield granting an unlimited number, and many clubs co-operated. The Leicester Baths Committee, too, granted fifty-three scholarships to scholars about to leave school. The scheme was furthered by lectures and honorary instruction, while Messrs. Unwin and Crayshaw, by their exhibition of swimming strokes, did much to secure accurate and scientific teaching.

In the public schools and universities, swimming has attained great popularity only in recent years. The Oxford University Swimming Club was started in 1891; the Cambridge Club, though founded in 1855, took little active interest in the swimming world until the introduction of water polo brought about the first match with Oxford. Eton introduced swimming teaching in 1839, requiring all boys to pass a test before permission was given for boating. Harrow is proud in the possession of "Ducker," one of the finest open-air baths in England; and Rugby in 1876 received as a gift from its head master a fine covered bath.

**The Royal Life-Saving Society.** No account of the history of swimming would be complete without some note of the important part played by the Royal Life-Saving Society, which was founded in 1891 and has done more to make swimming a benefit to the nation at large than any other institution. Its work extends over practically the whole of the Empire, and reports come in regularly from affiliated branches in Canada, New Zealand, Western Australia, New South Wales, Tasmania, Rhodesia, the Transvaal, and the West Indies.

G. F. H.

**SWIMMING, THE TEACHING OF.**—To make swimming a pleasure you must have perfection, every portion of the body being able to do its proper work, every muscle being brought into play by natural means, as with perfect action the work of the limbs is equalized, to the advantage and enjoyment of the swimmer. Too little attention is frequently paid by teachers in the initial stages, and although tuition is often given, it frequently begins at the wrong end or at stages far in advance of those at which it is prudent to commence, and so much energy is fruitlessly expended. It is essential that swimming should be indulged in without any part of the body being subjected to unnecessary or excessive strain, and this result can only be obtained by that perfect co-ordination, which can only be

acquired by a subject free from pre-occupation. Land Drill is of high value, and experience forcibly shows that in the initial stages the movements should be so practised, as the natural fear of water felt by many often distracts the beginner's attention from the thought required for the acquisition of a perfection of movement. "Learn to walk before you can run," or you will probably find that there is no progress to encourage effort.

**The Breast Stroke.** This is the groundwork of all good swimming, not excluding the various fluke strokes—of which the "crawl" is the latest and fastest—and which are adjuncts, as it were, and are used principally for the sake of variety and speed.

Practise each movement in its turn, viz.—

1st—legs; 2nd—breathing; 3rd—arms.

The legs being the principal propelling power, Nos. 1 and 2 are the principal factors in attaining perfection in this stroke. When properly used, they also materially assist in promoting buoyancy, particularly in the case of the male sex, but, as a general rule, the exercises in the rudimentary stages are universally applicable.

**Leg Action (Single).** There are three movements.—

*Movement 1.* Bring up one foot, and with the knee outwards (or horizontal) touch inward side of other knee with sole of foot.

*Movement 2.* With foot and leg in same position, and keeping the knee quite stationary, the foot should leave the knee by a rounded or circuitous movement behind the body so that the leg becomes opened to its fullest extent.

*Movement 3.* With the leg fully extended, bring it down straight until both legs meet. After sufficient practice these movements may be tried with both legs, and their positions will be as follows—

*Movement 1.* Both knees outwards (or horizontal), and soles of feet touching.

*Movement 2.* Both legs open.

*Movement 3.* Both legs together.

The greater the width between the leg at the end of movement 2, the greater the resistance when bringing them together, and therefore the greater the propelling power.

Difficulty is often experienced, more especially by elderly pupils and those following a sedentary occupation, in the movement from 1 to 2, as the necessary twist or rounded action which is required principally to assist buoyancy by the downward pressure from the top of the feet is not always pleasant. It certainly affects a particular set of muscles, but the stiffness or soreness occasioned under certain conditions or circumstances, is soon overcome by gradual and constant practice. Excesses under certain conditions often prove a detriment, but it is sometimes necessary to resort to the excess in order to arrive at the medium. It more particularly applies when practising the combined movements (viz.: legs, breathing and arms) as the pupil will find that, when moving the legs only in the No. 2 movement, he gets greater width than when they are working conjointly with the arms. The movement of the arms always has a deterrent effect upon the legs, and greatly diminishes the possible width.

Thus the extreme in the No. 2 movement was advised in order to arrive at the medium in the combined actions.

**Breathing and Arm Actions.** (INHALING AND EXHALING.) This exercise is done conjointly with

the movement of the arms. Confidence is also created by knowing when to inhale and exhale, otherwise it has a distressing effect upon the pupil, and loss of power is occasioned, for the pupil often gets discouraged by continual mouthfuls of water. The breathing should always be through the mouth, the action of the arms assisting, as will be afterwards explained. The arm stroke is practically a natural one, and only has to be improved as directed.

There are three movements—

*Movement 1.* With hands (palms downward) at chest and elbows at side of body—Extend arms.

*Movement 2.* With arms in same position, turn hands back to back and open arms until they are horizontal or square with the shoulders.

This is the action referred to in the preceding paragraph, as during this movement the head should be raised and a deep and full breath taken (fill the lungs) through the mouth. This is also the only propelling or resistance action of the arms.

*Movement 3.* With the arms in same position, drop elbows to side of body, and bring both hands together as directed at the start of movement.

By dropping the elbows to the side resistance in extending the arms is avoided. Swimmers exhale when extending the arms (*Movement 1*), and it should be particularly noted that, although it may appear somewhat confusing to the reader, the latter movement is in reality the finish of the stroke (*i.e.* when the lungs are completely emptied).

Having sufficiently practised these movements on land, the legs can be practised in shallow water or from the steps of any swimming bath; the arms can also be practised, always remembering to dwell on the forward reach of the arms (breathing and arm actions, *Movement 1*) and the stiff or resistance stroke of the legs (leg action, *Movement 3*).

With regard to the combined actions, the correct positions of the arms and legs at the finish of certain movements had better not be indicated, as, with sufficient practice, Nature generally settles the question; in reality, however, the arms are moving when the legs have finished, or nearly so, and *vice versa*.  
C. NEWMAN.

**SWITZERLAND, THE EDUCATIONAL SYSTEM OF.**—Though the Swiss scholastic system is under general central control, its local arrangements display great diversity. Both features are clearly traceable to the political conditions and peculiar historical development of Switzerland.

Before 1848 the Swiss Confederation was a mere league of twenty-five loosely connected, semi-independent states—cantons and half-cantons. The Federal Union of 1848 secured a certain amount of centralization, but education was left under the control of individual cantons. Not till 1874 did the revision of the constitution place elementary education on a uniform basis; even this left the cantons a free hand in administration.

Article 27 of the Federal Constitution directs—"Each canton must provide sufficient primary instruction, to be under its exclusive control, and compulsory and, in the public schools, gratuitous."

Cantonal supervision is emphasized with a view to the claims of the Catholics, yet complete freedom of conscience is guaranteed and the schools are undenominational.

The treatment of religious instruction varies: Neuchâtel has handed it over to the Church; in some

cantons undenominational moral instruction is given by the teachers; in others denominational instruction is provided by the local clergy; and in some Catholic cantons the Church has complete control of the teaching and prescribes the methods to be adopted. In the churches of Obwalden an annual offertory is made in aid of the schools.

Article 16 of the Factory Act of 1877 is important. Children under 14 are forbidden to work in factories. From 14 to 16 they must not work for more than 11 hours a day, including scholastic and religious instruction, and the factory work must not encroach on school attendance.

Intermediate education is purely cantonal. The schools include higher grade schools (*Sekundarschulen*), classical schools (gymnasias), and modern schools (*Realschulen*), besides industrial and vocational continuation schools. University education is partly under cantonal and partly under federal control.

**Elementary Schools.** Cantonal differences of organization and administration depend on industrial and religious conditions. The province exercises control through an inspectorate and a supervisory body called the Education Council or Cantonal Education Committee, which is in constant touch with the authorities. The detailed organization is the duty of the scholastic district, which generally coincides with the political division. In each there is a School Board responsible to the cantonal authority, the Inspectorate or Divisional School Council, as well as to the district itself. The financial burden is borne chiefly by the district. To meet the cost of erecting and maintaining buildings, the purchase of school apparatus, and the remuneration of the staff, there is a special district school fund, fed by a direct school rate, and by fees, fines, donations, etc.

In the canton of Zurich the government grant is two-thirds of the sum paid in salaries; in Schaffhausen, one-half; Lucerne, three-quarters; Aargau, from 20 per cent. to 50 per cent., while in Vaud only needy districts are assisted. Each canton contributes to the cost of constructing and maintaining school buildings and gymnasias, and provides for the retiring allowances and pensions of the teachers; it also usually supplies school materials and apparatus at a low price or gratuitously, and, like the government, supports educational institutions.

School life begins at 6 or 7, according to the district, and continues for 6, 7, 8, or 9 years—usually for 8. Most schools are open all day throughout the year; but, in agricultural and mountain districts, there is only morning school in summer, and in the very mountainous canton of Uri school is open only from October to May. In country districts the needs of the farmers determine the holidays which vary from 8 to 12 weeks; in the half-yearly schools they last from 12 to 22 weeks. In Uri 3,480 hours is the entire school course; in Vaud it is 11,332 hours (the maximum).

In the country and in many urban districts the schools are mixed; boys and girls are separated in the Basle Municipal Schools, and in Zug also, as far as practicable, especially in the upper classes. In higher grade schools co-education is becoming general. The syllabus is the same for both boys and girls. The chief subjects are: the mother-tongue, reading and speaking (German in German Switzerland, etc.; in the Grisons both Romansch

and German are obligatory); writing; arithmetic; the history and geography of Switzerland; Bible history; nature study; drawing; singing and gymnastics.

Gymnastic exercises are compulsory for boys, though not always throughout their school career; in some parts they are compulsory for girls, too. It is controlled by federal regulations, and directed in the lines of the "Federal Gymnasium."

Girls learn needlework (knitting, sewing, darning, making simple garments, etc.). Except in Uri and Inner Rhoden (Appenzell) needlework is compulsory, but cantonal regulations are not uniform: though it usually begins in the third or fourth school year, in some cantons it starts at once. It is supervised by women's committees who report to the district school councils.

Handwork for boys is gaining ground, but is compulsory only in Geneva and Vaud. In the year 1905-6, 20,163 boys were taught handwork, at a cost of £6,600, and this comprised cardboard modelling, basket making, carpentry, wood-carving, clay modelling, metal work, and gardening.

A great defect is the large number of pupils allotted to a single teacher, but smaller classes mean more teachers and more classrooms, and greater financial burdens. In 1912 the number of pupils per teacher averaged 44. Pestalozzian methods are employed.

Recently social tendencies have appeared in the educational system, such as the gratuitous provision of school apparatus by the cantons of Glarus, Solothurn, Basle (town and country), Vaud, Neuchâtel, Geneva, Zug, St. Gall, Zurich, Thurgau, and Aargau, which supply it free of charge through the municipalities to the children, rich or poor; Berne, Unterwalden, and Fribourg limit the supply to those in need of help; other cantons, like Lucerne and Ausser Rhoden (Appenzell), reimburse the municipalities for their outlay. Other social arrangements include school kitchens, where meals are prepared for poorer children who come from a distance; shelters (*Jugendhorte*) to counteract the street life of the children out of school hours; holiday shelters, which pursue the same object during the holidays; and holiday homes, which are very popular and continually increasing in number, and where poor children are usually received quite free, those able to do so making a small payment. All these enterprises are generally the outcome of private initiative, though recently undertaken also by the municipalities; both the cantons and the central government give them financial support, their value from the standpoint of national health being fully recognized. The larger localities, especially the industrial centres, have all set up holiday homes; there are 431 throughout Switzerland, 272 of them belonging to Zurich.

Among educational institutions of a social character are also school gardens, libraries (in most schools), and school savings-banks and insurance-funds.

As regards school hygiene, bathing accommodation is insisted on in all modern school buildings though much remains to be done in this direction. Detailed plans as to school sites, architecture, space, and light, lighting, etc., exist in every canton, as well as medical regulations determining the procedure on the outbreak of infectious diseases. Basle, Lausanne, and Zurich have regular school medical inspection, Zurich employing permanent

school doctors and dentists. But all this is still in the initial stage.

Attention is paid to the education of the mentally deficient, special classes in fifteen cantons and semi-cantons relieving the normal classes greatly. Provision for blind and deaf and dumb children is undertaken everywhere; in 1912 there were nineteen institutions for the deaf and dumb and blind, and thirty-six for the mentally deficient. In 1886 £700,000 was expended on the elementary school system; by 1912 this had risen to £2,370,000, i.e. to about 15s. 2d. per head of the total population. The minimum expenditure is in Schwyz (about £1 8s. per scholar), the maximum at Basle (nearly £12).

#### ELEMENTARY EDUCATION, SWITZERLAND, 1919.

School districts.	Classes.	Scholars.	Teachers.
3,336	Mixed, 10,523 Boys 1,330 Girls 1,333	Boys 272,760 Girls 272,385	Men 8,034 Women 5,330
	13,186	545,145	13,364

**Infants' Schools.** The Confederation does not trouble itself about the education of its youngest citizens. In German Switzerland infants' schools or kindergartens are almost wholly due to private initiative or to the municipalities. The town of Basle alone has official organization, and there attendance is optional. In Fribourg and Aargau cantonal regulations exist, but their execution is left entirely to the various districts and to private individuals. The larger towns, however, are doing a great deal: thus the town of Zurich possesses sixty-two municipal kindergartens, conducted on Froebelian lines. Most of the smaller towns have infants' schools, but in the country the demand is small.

In French Switzerland *écoles enfantines* are included in the general scheme, and form a preliminary step to the elementary school. Hence, in Vaud, Geneva, and Neuchâtel, the rudiments of reading, writing and arithmetic are taught in them.

**Continuation Schools.** The military system is based on universal service. In 1875-6 a test was imposed on recruits, in reading, composition, arithmetic, and Swiss history and geography, and consequently continuation classes, civic schools and revision and tutorial institutes were set up for youths after leaving school and before entering the army, the work of the elementary school being repeated and in certain directions extended (e.g. as regards instruction in citizenship). The courses, under elementary teachers, are usually held only in the winter, for two, three, four, or more hours a week; the cantonal regulations make them compulsory for youths from 15 to 18, for two years out of the three.

**Training Colleges for Teachers.** There are thirty-nine training centres, thirty under cantonal regulations and nine private. Twenty-five are in German, twelve in French, and two in Italian Switzerland. In the Grisons, Solothurn, Geneva, and Schaffhausen, the colleges are attached to the cantonal schools which will be referred to later; in the other cantons they are independent and generally residential. The private seminaries are

denominational. Eight cantons, Zurich, Berne, Aargau, Ticino, Vaud, Valais, Neuchâtel, and Geneva, have special colleges for women; in the others the institutes are open to both sexes. Uri, Unterwalden, Glarus, Zug, and Appenzell have no cantonal training colleges, but there are private institutes in Obwalden and Zug.

The qualification for entrance varies. Most cantons require a secondary school education, the rest are satisfied with the complete elementary course.

#### TRAINING OF TEACHERS, 1919.

Students.	Cantonal Colleges.	Private Institutes.
Men	939	34
Women	862	222
	1,801	256

**Intermediate Schools.** Including all between elementary schools and the universities and polytechnic, these comprise district higher grade schools, cantonal schools, gymnasia (classical schools) and Realschulen (modern schools), besides industrial continuation schools, special schools, and technical institutes.

(a) **HIGHER GRADE SCHOOLS.** These, variously described as district schools, *écoles secondaires*, and *scuole maggiori*, carry further the work of the elementary school, and prepare for the upper classes of the classical and modern schools. The subjects taught include the native tongue, a second language spoken in Switzerland (French in the German and Italian cantons, and German in French Switzerland), arithmetic, geometry, book-keeping, history (Swiss, general, and constitutional), geography, Nature study, gymnastics, singing and (for girls) needlework. In preparatory schools the following optional subjects are added: Latin, Greek, English, and Italian.

Attendance is optional, except at Basle and Geneva, where it is a compulsory supplement to the six classes of the elementary school. Pupils are admitted, after a preliminary test, from 11 to 13. The work covers two, three, or four years, according to the canton. In some cases attendance is free, while in others a moderate fee is charged. The run on these schools is usually very great.

The expenditure of the cantons on higher grade schools varies enormously. In 1912 Geneva expended £3 10s. per pupil; Valais, on the other hand, less than £1. The total cost exceeded £350,000.

In 1918 there were 623 higher grade schools with 1,863 departments, of which 1,127 were mixed, 339 for boys, and 397 for girls. The number of pupils was 64,183, with 2,559 teachers, of whom 2,145 were men and 414 women. A University course of two and a half years is usually prescribed for teachers.

(b) **HIGHER INTERMEDIATE SCHOOLS** (Gymnasia, *Realschulen*, and cantonal schools). These are preparatory to the University and Polytechnic, and vary in type. In the towns of Zurich, Aargau, Frauenfeld, Coire, St. Gall, Schaffhausen, Soleure, Porrentruy, and Lugano, the different departments (grammar school, modern or industrial school, and commercial department) are under the same

management and are called cantonal schools. At Basle, Berne, Winterthur, Lausanne, and Neuchâtel, the departments are independent. At Lucerne they are officially united as the Higher Institute; at Sarnen they form the Cantonal Institute. The corresponding schools in Geneva, Fribourg, and Valais are called *collèges*; at Lausanne the classical department is divided into *collège cantonal* and *gymnase classique*, while *école industrielle* and *gymnase scientifique* together make up the modern department. In Neuchâtel there is a *collège cantonal*, and above it the *gymnase classique*.

There are, especially in the Catholic cantons, a number of institutes originally of a religious character, which now occupy the position of cantonal schools. Such are the Maria Hilf College at Schwyz, the San Carlo Borromeo College at Altdorf, the Teaching and Training Institute at Einsiedeln, the colleges at Sitten, St. Maurice, and Brieg, and the Collège Saint Michel at Fribourg, all originally connected with convents and monastic orders. Beside these, there are institutes of pronounced evangelical origin, such as the "Free Gymnasium" of Berne and Zurich and the "Evangelical Institute" at Schiers: these three have the same syllabus as the State institutes, and their own leaving examinations.

This type of higher intermediate school is of recent development. The gymnasia which are not nineteenth century foundations, date back to the convent schools or the evangelical Latin schools of the Reformation. Only since the thirties of the nineteenth century, and mainly since 1848, have these schools thrown off their mediaeval aspect and opened their doors to modern needs. By the side of these classical institutions there sprang up the technical-industrial and commercial departments, and thus the typical cantonal school, with its three branches, was developed. The gymnasium also vary somewhat in syllabus. Thus, Basle has only a classical school where Greek as well as Latin is compulsory, whereas the gymnasia of most of the other towns have both classical and modern sides, and in the latter Latin only is compulsory, Italian and English taking the place of Greek. Some gymnasia pay more attention to natural science, others make a speciality of philology and history. Syllabuses tend, however, more and more towards uniformity, this being an indirect consequence of the uniformity brought into the course of medical studies in 1877, when federal medical examinations were introduced, beginning with the Federal Leaving Examination. The cantonal, municipal and private gymnasia arrange their time-tables more and more with a view to satisfying the requirements of this examination. Besides the mother-tongue and the ancient languages, one or more modern languages are compulsory; mathematics give way a little to experimental science; and more attention is given to history.

The technical and modern departments are nineteenth century foundations, and prepare for the Federal Polytechnic. Classics are not in the syllabus, and stress is laid on mathematics and natural science.

The admission age varies. If there are both upper and lower departments it averages 12; but in institutes to which the higher grade and district schools are preparatory, pupils are usually over 15 on admission and pass out at 19.

**Girls' Intermediate Schools.** These are parallel to the boys' schools, some of which, indeed, have recently begun to accept girls also. All the more important towns have these schools, though they do not always prepare for the University. The municipal high school for girls in Zurich comprises a training college for elementary school teachers, a classical department associated with the University, and in addition, continuation classes and single-year courses for training kindergarten teachers.

#### **Vocational and Technical Intermediate Schools.**

(a) **INDUSTRIAL CONTINUATION SCHOOLS.** These schools supply vocational training, without specializing in any particular branch. They were originally chiefly private or industrial societies. In 1884 the Federal Government undertook to subsidize them; and in most cases the municipalities have taken them over. There is no standard type for this class of school, but the following general characteristics may be noted. The chief subjects are: Elementary and professional free-hand drawing, painting, geometry and projective drawing, technical drawing and modelling. Attention is given to business essays, commercial arithmetic and book-keeping, as well as to geometry, algebra, applied chemistry and physics, electricity, the history of material products, mechanics, political economy, calligraphy, national history and geography. There are yearly and half-yearly schools, open in the early hours of the evening, or else on one or two half-days a week; in a few places instruction is given on Sundays. The instructors are elementary and intermediate school teachers, assisted by specialists. There is no charge except a small nominal fee, but the pupils provide their own materials. The age of admission is from 13 to 15, according to the canton.

In thirteen cantons and half-cantons, apprentices are compelled by law to attend these continuation schools, and their masters are obliged to give them time off for attendance. In 1884-5 the Federation expended £7,750 on these schools; in 1912 the amount was £55,000; the number of schools increased during that period from 92 to 396.

(b) **GIRLS' CONTINUATION SCHOOLS.** In 1895 the Government assumed financial responsibility for the domestic and vocational training of girls. Attendance is optional; domestic subjects (*e.g.*, needlework, cooking, ironing, and gardening), languages, pedagogy, and moral instruction are taught; the courses usually last only one winter, and attendance will no doubt soon be made obligatory. In 1912 there were 522 schools, and the Government grant was £20,000.

(c) **SPECIALIZED TRADE SCHOOLS.** Besides these, specialized schools abound, including (1) Trade schools; (2) schools of applied art; (3) schools for special occupations (*e.g.* for metal-workers, mechanics, watchmakers, locksmiths, tinsmiths, carpenters, joiners, etc.). There are institutes for textile operatives, where silk-weaving, ribbon-weaving, and embroidery are taught. There are also schools for potters, decorators, bookbinders, etc.

For women, there are schools of cookery and housewifery, and schools of needlework. Of these, in 1912, there were 522, and the State and municipal grants totalled nearly £90,000.

(d) **TECHNICAL INSTITUTES.** The highest class of technical-industrial intermediate schools provide training for mechanical, civil, and electrical

engineers, analytical chemists, surveyors, railway officials, etc., as well as commercial and modern language courses. They are mostly under cantonal control; there are technical institutes at Winterthur, Bienne, Burgdorf, Fribourg, Neuchâtel and Geneva.

(e) **COMMERCIAL SCHOOLS.** Commercial departments form part of most cantonal and independent modern schools, but there are, besides, forty-two independent commercial schools and institutes, including the municipal Commercial Academy of St. Gall and the commercial departments of the Universities of Zurich, Berne, Fribourg, Lausanne, and Neuchâtel. The Swiss Commercial Association possesses eighty, and other associations and municipalities forty more commercial continuation schools, all of which are subsidized by the Confederation.

(f) **AGRICULTURAL TRAINING.** In 1919 there were six schools of agriculture, twenty-five winter schools for farming, three dairy schools, two schools of gardening and vine-growing, besides special local courses in agriculture; the Federal Polytechnic also has an agricultural department.

The number of agricultural pupils was 1,393, and the grant £35,000. The total expenditure in vocational education for men amounted to about £200,000.

**Universities and Academies.** Switzerland possesses a Polytechnic Institute, and seven universities.

The *Polytechnic* was opened in 1855, and included the following departments: (1) Architecture; (2) Engineering; (3) Mechanics; (4) Technological Chemistry; (5) Management of Estates and Forestry, with a section for Agricultural Engineering. Later were added: (6) Mathematics and Natural Science; (7) Philosophy, Literature, Languages and History; (8) Military Science. The Polytechnic enjoys a high reputation abroad. The number of pupils was 231 in 1855, 1,014, in 1875, and 1,511 in 1900. In 1912 there were 2,549 regular students and *Hospitanten* (students who attend occasional lectures). The Polytechnic is financed by the Federal Government, but the town and canton of Zurich undertook certain obligations in return for Zurich being made the seat of the school. They supply the buildings, place their municipal collection at the disposal of the teaching authorities, and contribute an annual sum of £640. In 1855 the total cost was £5,800; in 1912, over £61,000; and in 1918, over £97,770.

**Universities.** There are over 700 university teachers, of whom more than 500 are actual professors.

During the winter term of 1919-20 the students were distributed as follows—

University	Students.	Hospitanten.	Total.	Students.	
				Native.	Foreign.
Berne . .	1,825	647	2,472	1,446	379
Zurich . .	1,787	316	2,103	1,479	308
Geneva . .	1,086	467	1,553	660	426
Lausanne .	979	457	1,436	604	375
Basle . .	1,013	317	1,330	849	164
Fribourg .	502	38	540	309	193
Neuchâtel .	199	167	366	166	33
Lucerne (Theological Faculty) .	51	—	51	49	2
	7,442	2,409	9,851	5,562	1,880

Before 1914 the number of foreigners almost equalled that of the Swiss students. In Fribourg,

Lausanne, and Geneva the former greatly exceeded the latter, but the 1919-20 figures show a great diminution of the foreign element. Of the 7,442 students, about 900 are women. Among the occasional students or *Hospitanten* there are, however, many Swiss women. Of foreigners the majority are Russians and Poles, who pursue their studies in Switzerland free from all political interference.

The organization, even in Western Switzerland, corresponds to the German, with the historic division into the four faculties, theology, law, medicine (with dental and veterinary departments), and philosophy; the last being divided into two sections, of which one is devoted to philosophy, history, and philology, while the other deals with mathematics and the natural sciences. Originally independent, the universities are to-day under State supervision, and are subsidized by the State. Except in the case of the Catholic University of Fribourg, and the Theological Faculty of Lucerne, there is complete freedom of instruction. There is no college residential system, such as is traditional in England. The cost is thereby considerably reduced and higher education is made accessible to wider circles. The most valued possession of the Swiss student is his unconditional liberty, of which he is both proud and jealous, including the freedom of going from one university to another, even in other countries, in order to hear foreign teachers of distinction.

By far the oldest and most venerable is the *Alma Mater Basiliensis*, the University of Basle. Founded by Pope Pius II, it was inaugurated in 1460. Berne University was originally an evangelical Academy of the Reformation period, founded in 1528, and enlarged in the eighteenth century by the addition of political science and the humanities. Not till 1834 did it become a university. Zurich University originated in a School of Theology founded by the reformer Zwingli, and was transformed into a university in 1833. The Universities of Geneva and Lausanne are likewise products of the Reformation. In 1559 Calvin founded an academy at Geneva, which, though mainly devoted to divinity, soon obtained a great humanistic reputation also. Its extension into a university with four faculties did not, however, take place until 1876. In 1536 the lords of Berne founded a Protestant Theological Academy at Lausanne to train pastors for the recently conquered province of Vaud, but it was too near Geneva to be successful. It became a university in 1890. Fribourg University is quite modern, though its germ is an old school of law. Its nucleus now is the Catholic Theological Faculty, created like the University itself, in 1890. It is under the supervision of the Dominican Order, which controls the choice of professors. The students are recruited mainly from the Catholic cantons and neighbouring Catholic countries. The smallest and most modern university is that of Neuchâtel, which grew out of a philosophical and legal academy founded in 1841, and did not become a complete university until 1909.

**Finance.** The municipalities bear the chief financial burden for elementary education, and more than half the cost of secondary and continuation schools. The cantons make contributions to these, and are almost entirely responsible for the upkeep of the higher intermediate schools and the universities. The Polytechnic is almost exclusively the concern of the Confederation,

which also supports and promotes industrial training and social and philanthropic educational reforms. Regular subsidies, paid by the Confederation to the cantons and by them to the municipalities, are applied to similar purposes.

#### EXPENDITURE, 1912.

##### (a) Cantonal and municipal disbursements.

	Cantonal Expenditure.	Municipal and other Disbursement.	Total.
(Millions of francs)			
1. Elementary Schools . . .	22.7	36.5	59.2
2. Higher grade Schools . . .	4	5.2	9.2
3. Continuation Schools . . .	1	2.7	7.5
4. Vocational Schools . . .	3.8	1	7.6
5. Intermediate Schools . . .	6.6	—	5
6. Universities . . .	5	—	5
	43.1	45.4	88.5

##### (b) Buildings (university, intermediate, and vocational schools, etc.)

2.5

91.0

##### (c) Federal disbursements.

1. Federal Technical Institute . . .	1.5	
2. Vocational training—		
(a) Men . . .	1.4	
(b) Women . . .	0.5	
3. Agricultural training . . .	0.3	
4. Commercial training . . .	0.9	
5. Subsidy to Elementary Schools . . .	2.4	
		Total 98.0

Less Federal subsidy to Elementary  
Schools (included under both a (1)  
and c (5)) . . .

2.4

Total Cost of Education . . . 95.6  
millions of francs.

The total cost (federal, cantonal, and municipal) of national education in 1912 was therefore  $\text{fr}3,825,000$ .

**Private Schools.** Besides the public schools, subsidized by the State, there are several hundred private institutions, particularly in French Switzerland. Though of small account as regards national education they are, however, of economic importance, being, as it were, enterprises coming under the head of "Foreign Trade." They live almost exclusively on pupils from abroad, for most well-to-do Swiss people send their children to the public schools.

One group deserves more attention, and may become important. "Country Education Homes" have been established on the model of an English school—the New School at Abbotsholme (Derbyshire), founded by Dr. Cecil Reddie. These "Homes" are boarding schools; their aim is to turn out self-reliant individualities by means of the harmonious development of mind and body. Manual work (*e.g.* gardening, carpentry, and metalwork) is given an important place in the curriculum.

Swiss public schools are day schools, and are, therefore, schools of instruction rather than of education; but they render possible a much more intensive home training. In addition they possess the great advantage of cheapness. Only this is a high standard of national education possible. Switzerland is a democracy, and democracy and national education are indissolubly connected nowadays, for the future of democracy lies in the continuous advancement of all, even the lowest classes of the people. Together with universal

military service, the best means of developing democratic thought and feeling is to be found in the national schools, where children of all classes of society mix together. In progress on these lines, in the advancement and growth of the working capacity, strength and intelligence of the people, lies the future of Switzerland. E. H.

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Text-Bk.: Die Organisation der öffentlichen obligatorischen Primarschulen. Die Organisation der Sekundar und Mittelschulen. Gewerbliches und industrielles und hauswirtschaftliches Bildungswesen in der Schweiz.

**SYMBOLISM AND EDUCATION.**—Symbolism is necessary for human intercourse. "It is in and through symbols," said Carlyle, "that man, consciously or unconsciously, lives, works, and has his being: those ages, moreover, are accounted the noblest which can the best recognize symbolical worth, and prize it highest." Language is entirely symbolic. Words are symbols exactly as musical notes are symbols of certain sounds. The musician looks at a note and recalls a sound; we look at the symbol *lion* and it recalls the animal. Familiarity may cause us to forget the symbolic character of language, but a moment's thought will show us that all human relations are enormously simplified and made easier by the use of symbols. Consequently it is impossible to conceive of education without symbolism.

The educational writer whose name is most associated with the use of symbols is undoubtedly Froebel. According to his philosophy, which apparently he learned in large degree from Schelling, everything in Nature is symbolic, and is intended by God to teach spiritual truth. This is not pantheism, for God is not identified with the world, but the world is intended to reveal, and does reveal, God. It is the same teaching that is found in Wordsworth, and in Tennyson's famous poem "Flower in the crannied wall." To Froebel, as to Wordsworth, the yellow primrose is far more than a primrose; for it is to some extent, a manifestation of divinity. Consequently the child, from his earliest age, must be taught through the use of symbols, which Froebel believed had a certain innate power of conveying the intended lesson. All the little childish games will carry moral teaching. He plays Bo-peep with his mother and this will teach him the call of conscience—

"What a little Baby hears

In his Mother's call, 'Bo-peep,'

Is, in all his later years,

Conscience calling clear and deep.

Heed this soft pulse beating still;

Let it lead you and it will.

Then Baby will not feel alone,

For Conscience will be all his own,

And their double life be one."



So Froebel devised a series of songs and games for children with this symbolic end in view, and these songs and games have been practically the foundation of all later kindergarten teaching.

Many will think that he went too far, that he was often fanciful, and the slave of his own chief idea. No doubt he sometimes exaggerates and is even fantastic at times, but advance in psychological knowledge certainly justifies him in his belief in the value of symbols. The more symbols we can quote, in order to convey associations, the better. In religious education symbols have always been largely used. Our Lord's parabolic teaching was symbolic, and Christianity, especially Catholic Christianity, has always insisted much on the importance of symbols. All her rites are symbolic. Her sacraments even are symbols—effectual symbols, no doubt, that convey what they symbolize—but symbols all the same. Christian art is symbolic, and readers of M. J. K. Huysmans's *La Cathédrale* will remember how that whole book is really nothing but a description of the symbolic character of Chartres Cathedral. It is possible that a psychological explanation of the arrest of the progress of Protestantism since the sixteenth century may be found in the Protestant suspicion of the use of symbols. The familiar story of St. Patrick and the shamrock is typical of the use of symbols by Christian teachers, whether it is in the education of children or in the teaching of the heathen.

Nor can symbolism be disregarded in the teaching of patriotism. In former years, patriotism was taken for granted and no attempt was made to teach it in schools. We know better now, and in practically every school instruction on the duty of patriotism is given. And symbols prove of extraordinary value in all such teaching. With ourselves the symbol of patriotism is the flag. Soldiers have died to save the colours because in no better way could they show the love of country which had become a passion. It is perhaps not too much to say that patriotism cannot become a passion without a liberal use of symbols. The King's uniform means a great deal, and an insult to it, even in the person of the most obscure private, is an insult to the King himself, and, more than that, an insult to the country. The salute to the flag, which is part of the Empire Day celebration in most elementary schools, has a deep psychological reason behind it. It is in such ways as this that children learn the duty of patriotism.

Of course it is not only in the teaching of religion and in the teaching of patriotism that symbolism is valuable. It must have a large part in all education. How great that part may be is still matter of controversy. The late Professor William James, the prince of modern psychologists, has suggested in his *Principles of Psychology* that it looks as if the outward had the power of producing the inward, not *vice versa*. This is bringing us back very near to Froebel.

G. C. R.

**SYMPATHY.**—In its most primitive form, sympathy appears as mere contagion of feeling. A gregarious animal may be stimulated to feel the various instinctive emotions of which it is capable by perceiving these emotions manifested in the behaviour of its fellows. The renowned sympathy of the dog that has learned to use for a human companion the gifts conferred by its gregarious ancestry, shows of what development

this primitive sympathy is capable; but the more advanced forms of human sympathy, of which alone earlier definitions commonly took account, imply some mental representation of the state of another mind, and some identification of self therewith. The distinction between the more primitive form of sympathy and the more advanced may be illustrated from the behaviour of children, who, when their teacher is anxious and depressed, by reflecting her mood increase her difficulties, whereas the sympathy capable of divining her state of mind and making identification with her purposes would lead to very different behaviour. Yet there is a direct relation between the two kinds of sympathy, since the sensitive and receptive attitude pertaining to primitive sympathy passes naturally into the imaginative personal form as intellect and self-consciousness develop.

In common usage the volitional aspect of sympathy is often particularly emphasized. To be in sympathy with a man is to share the emotions and purposes that pertain to his point of view. The psychologist, however, traces the essential nature of sympathy in subtler manifestations. Through the whole range of the studies that deal with life and mind, sympathy is involved, and it is only through the interpenetration of intellect and sympathy that real grasp can be achieved. However little the student may wish to adopt permanently the various views of life to which his historical and literary studies introduce him, his success in understanding them, even for purposes of criticism, will depend, not merely upon his pondering in detail the words and actions of the persons studied, but also upon his power to put himself, as it were, at their central point of vision, and to vibrate for the moment with the impact of life as it feels to them. Nor is it humanistic studies only for which sympathy is needed. Certainly it is no easy task for the self-conscious mind, laying aside its own prerogatives, to penetrate in imaginative glimpses to the world of mere sense and impulse; yet even here sympathy can force a way. It would seem to be largely the increased sense of kinship with the lowlier forms of life that has inspired recent investigations into the behaviour of animals and even plants, studies by which in turn the possibilities of imaginative sympathy have been extended. Even with regard to the inanimate world, psychologists studying aesthetic perception have shown that the tendency to take on, in a kind of sympathy, states suggested to us by the forms of objects, is an essential element in the appropriation of their distinctive values for the purposes of art.

It follows from all this that an important part of education consists in the development of whatever power of sympathy the individual naturally possesses. While the results of accurate observation and reflection must check the first interpretations of undisciplined sympathy, yet the power to penetrate, unify and vitalize the material of experience through sympathy should increase, side by side with the power to test and criticize, through the whole course of intellectual development.

A. M. B.

**SYNAESTHESIA.**—A term used to describe a class of intimate associations between one sense-impression and another, in which the appearance of one carries with it the other also. An instance of this is afforded by what is known as "colour



hearing," the association of colour with sound. Many instances occur in which certain musical tones cause persons who hear them to visualize certain colours, and others in which the sight impression of colours will suggest sounds, letters, numbers, etc.

**SYNTAX.**—(See ENGLISH GRAMMAR, THE TEACHING OF.)

**SYSTEM.** In general this denotes a whole, considered in regard to the connection, organization, and arrangement of its parts. In education the word is used by Herbart (*q.v.*) to denote the organization of knowledge into a definite plan, and therefore the stage of generalization in method. For the establishment or the existence of a system

it is essential that a scientific plan or method should have been applied to a number of facts in such a way as to combine them into a coherent whole detached and distinguished from any other body of facts. In this way we speak of the solar system, the metric system, and the vascular system. In any system there must be an adaptation of means to the end, and a power of control which maintains the performance of their functions by the various units forming a complex whole. In any deductive educational system, the basis is a logical classification with definitions which fix the limits of the terms employed. But in the early stages of education, inductive method has largely replaced the logical system involving abstraction, generalization and classification.

## T

**TACTILES.**—There is a wide difference between the power of different individuals to call up in memory an accurate revival of past experience. While some call up objects vividly in their colour and form, the imagery of others is most pronounced for sounds or movements. Others again recall experiences in terms of words, rather than of concrete objects. Professor C. S. Myers proposes to call the first three classes "Visiles," "Audiles" and "Motiles" respectively. In accordance with this, it may be suggested that those who call to mind chiefly tactual experiences may be called "Tactiles."

W. M. B.

**TAILORING, THE TEACHING OF.**—In the teaching of tailoring it is desirable to divide the subject into two distinct sections: (1) dealing with cutting, and (2) dealing with the making-up. The distinction between tailoring and dressmaking is not merely a difference in the materials used, but in the principles involved.

The outside of the garment, in tailoring, is the portion fitted, the lining being used to make a neat finish, or to add warmth. In dressmaking, it is usually the lining that is fitted, the outside being draped on it to attain the desired effect. In tailoring, the seams are all on the inside, that is, between the lining and the outside material; in dressmaking, the lining and the outside are generally sewn together in the one seam, and the raw edges of the seams left on the inside of the garment.

In tailoring, much of the form imparted to the garment results from manipulation, whereby the cloth is moulded to the figure with the aid of heat and moisture; in dressmaking this is seldom possible, as the materials are so thin that they offer no scope for such treatment.

The garment to be tailored is usually drafted out systematically in harmony with the customer's measures and instructions; in dressmaking, a ready-cut pattern is more often used, and the fitting is left to the trying-on stage. Each method of procedure has its advantages, tailoring being more suitable for tweeds and cloths; but dressmaking for costumes from silks, muslins, and other fine materials. In tailoring,  $\frac{1}{4}$ -in. seams are usually provided, but in dressmaking the patterns are cut out to the net size and the sewing is actually

placed on the lines indicated by the pricker wheel.

**Style.** In teaching cutting, it must be impressed upon the pupil that he must clearly grasp the style of garment required, and obtain certain measures on the wearer. Fashion plates are very useful as a means of finding out the style desired, but a better plan is to have model garments arranged on dummies to show their special features.

The style selected should be in harmony with the figure and suitable for the occasion on which it is to be worn; it should, however, be pointed out that fashion plays an important part in all garments, so that the leading features of current styles must be embodied. Students should be taught to avoid extremes, unless the garments are produced for stage purposes, when it is frequently desired to emphasize the drift of fashion. In advising upon style and material, bear in mind that dark materials apparently minimize the size of the figure, whereas light goods emphasize it; stripes when used vertically usually add to the appearance of height, and are generally considered helpful except in cases of tall, thin figures; and check materials are apt to show up any discrepancy in the symmetry of the figure. Styles with vertical seams and vertical trimmings have a similar effect to that of striped materials.

**Measuring.** This is done with an ordinary inch tape. It is important to have a definite starting point, and most tailors begin at the nape of the neck (*i.e.* the seventh vertebra on the spine and the first prominence noticeable on the back of the neck). The collar seam usually comes on the top of this.

Figure 1. The measures necessary are: nape to natural waist (as A-B), nape to full length (as A-C); length of sleeve is taken from the centre of the back to the armhole seam D-E, and this is continued on to the elbow (with the arm raised at right angles to the body and bent forward) E-F, and then on to the full length of sleeve D-G. For garments fastening up to the neck, take the size of the neck as A-H-I, size of the chest as J-K, size of the waist as L-M, size of the hips as N-O. The chest measure should always be taken rather easily, as, owing to the expansion of the bust when breathing, a little excess is desirable; the waist measure should be taken closely, the hip measure

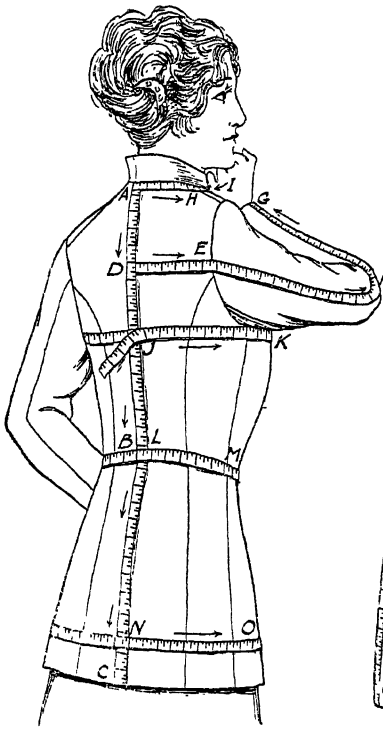


FIG. 1.

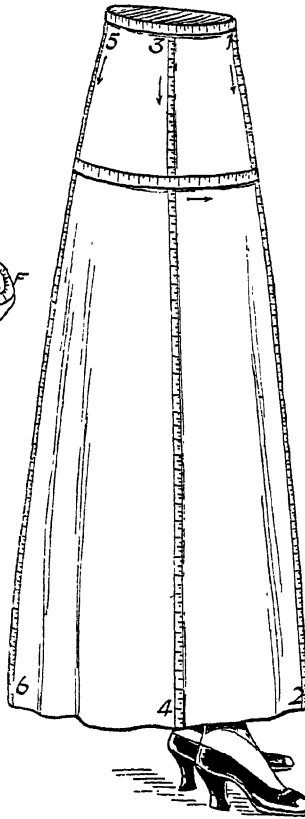


FIG. 2.

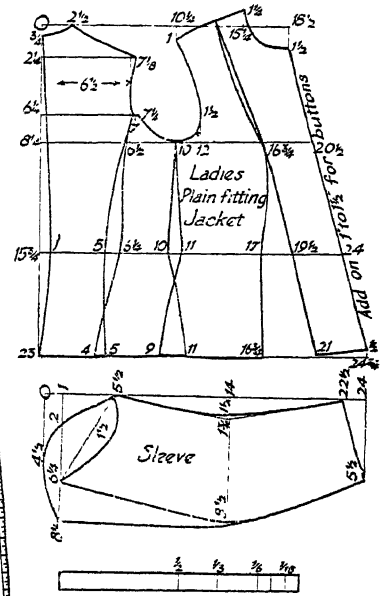


FIG. 5.

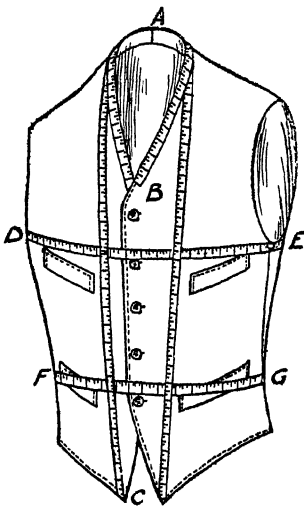


FIG. 3.

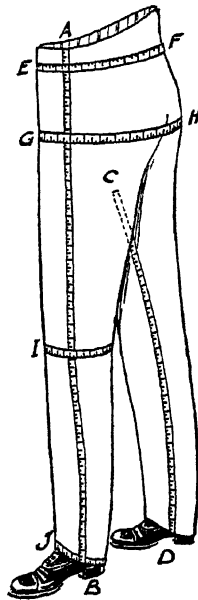


FIG. 4.

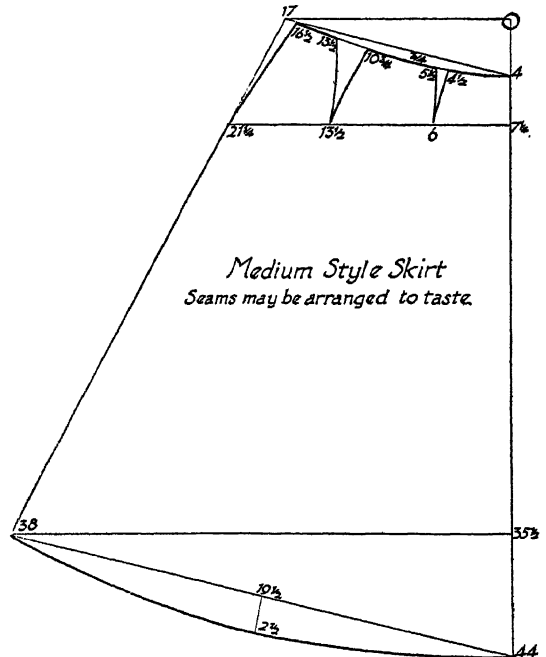


FIG. 6.



Fig. 5) about 1" wide; then fold it over so that it becomes about  $\frac{1}{2}$ " wide, and you get a double edge; now fold this half lengthwise and divide each half into three equal parts, marking each third space. Now take one of these third spaces and again fold that over into three equal parts. In this way the eighteenth of the desired size will be obtained, which will then bear the same relation to the chest measure of the customer as the inch does to the 36" model.

In drafting out patterns, use this tape for all leading positions, merely employing the ordinary inch measure to check the length from the nape to the waist and full length, and also the length of sleeve.

Some examples of these tapes should be demonstrated. For instance, let us suppose a 30" chest: half this would be 15", half that  $7\frac{1}{2}$ ", which, divided into three, would give  $2\frac{1}{2}$ ", and one-third of this  $2\frac{1}{2}$ " would give a unit of just over  $\frac{1}{4}$ ". A tape having been thus prepared, there will be no need to bother about aliquot parts for the different points on the pattern. Ready prepared tapes may be obtained in sets from The John Williamson Co., Ltd., 42 Gerrard Street, W.1.

This method depends for its success on the excellence of the model used, which requires using intelligently, because different sizes develop in their own special way. Thus it will generally be found that stout figures are somewhat small in the shoulders as compared with the 36" model, whilst small sizes are generally large in that region; and to obviate this defect, some tailors use a graduated tape of rather a small size for the stout figure, and make up width by adding on at the front so that the total size from back seam to front edge equals the half chest and  $2\frac{1}{2}$ ". Further variations in attitude and the general build must be provided for.

We are giving the reduced model of a foundation jacket and sleeve (Fig. 5), which can easily be adapted to various styles of blouses, jackets, long coats, etc.; we are also giving a reduced model of the medium style of skirt (Fig. 6). Full provision for  $\frac{1}{4}$ " seams has been made at all parts; the inlays, however, must be left if it is desired to provide for any alterations that may be necessary to meet the wearer's wishes.

We give reduced models of a lounge suit for a man, and the same remarks which we have made with regard to variations apply to this also.

**Cutting by Aliquot Parts.** Another method of cutting is by using aliquot parts. For instance, in the lounge (Fig. 7), 0-3 is one-sixth of natural waist; 3-5, 2"; 0-9, one-sixth breast plus 3"; 0-17 $\frac{1}{2}$  to measure; 0-32 to measure, taken plus  $\frac{1}{2}$ " for seams; 0-2 $\frac{1}{2}$ , one twelfth breast less  $\frac{1}{2}$ ". Come up  $\frac{3}{4}$ " and shape back neck, hollow back seam  $\frac{1}{4}$ " at 17 $\frac{1}{2}$ ", and make width of back on line 5, one-fifth of the breast, 0-9 $\frac{1}{2}$  is one-fourth chest, plus  $\frac{1}{4}$ "; 0-15 $\frac{1}{2}$ , five-twelfths of the breast plus  $\frac{1}{4}$ "; 0-18, half chest; 18-21, 3". On line 9, mark across 9-12 $\frac{1}{2}$  one-fourth of breast plus  $3\frac{1}{2}$ ", and find the rest of the points as indicated by fixed quantities.

Figure 8. The sleeve: 0-1, 1"; 0-5, one-eighth of breast plus  $\frac{1}{4}$ "; 0-4 $\frac{1}{2}$ , one-eighth breast; 1-9, one-fourth breast; measure off length of sleeve to wearer's requirements; hollow forearm, 1"; make 15-9 one-fourth of breast; come up  $1\frac{1}{2}$ " from 26 $\frac{1}{2}$  to 25; make width of cuff one-sixth breast plus  $\frac{1}{2}$ " or  $\frac{3}{4}$ ".

Figure 9 shows the cutting of the collar. Mark

out from hollow of neck 1", draw line from the top buttonhole through this point, come down at the back the difference between the stand and the fall of the collar (in this case  $\frac{1}{2}$ "); mark down  $1\frac{1}{2}$ " for the stand, and up 2" for the fall; follow round the gorge and shape the outside edge of the collar to taste.

**VEST.** (Fig. 10.) Draw line at right angles to 0, 0-2 $\frac{1}{2}$  one-sixth natural waist, less  $\frac{1}{2}$ "; 0-9 one-sixth breast plus 3"; 0-17 natural waist length; hollow back  $1\frac{1}{2}$ " at waist, draw back seam. 0-2 $\frac{1}{2}$  one-twelfth breast less  $\frac{1}{2}$ "; come up  $\frac{3}{4}$ " and shape the back neck; 0-11, one-fourth breast plus 2"; 0-13, one-fourth breast plus 4"; 0-15 $\frac{1}{2}$ , five-twelfths of the chest measure plus  $\frac{1}{2}$ "; 0-18, half chest measure. Make the width of the back at waist one-fourth waist plus  $\frac{3}{4}$ "; and, from 11 $\frac{1}{2}$  forward, one-fourth breast plus  $1\frac{1}{2}$ ", complete as shown.

**TROUSERS.** (Fig. 11.) Draw line 0-43, mark off length of side; 0-31, length of leg; 31-12 $\frac{1}{2}$ , one-third seat plus  $\frac{1}{4}$ "; 43-9, one-fourth seat; measure back from 9 to side one-fourth waist plus  $\frac{1}{4}$ ", draw the side seam by coming in  $\frac{3}{4}$ " at knee, and  $1\frac{1}{4}$ " at the bottom. Make the width at knee half-knee measure; and, at bottom, half bottom less  $\frac{1}{4}$ ". For the under side, from construction line to 14 $\frac{1}{2}$  is one-third seat plus  $2\frac{1}{2}$ "; make the width of knee half-knee measure plus 1", and the width of bottom, half bottom plus 1"; hollow the side seam as illustrated, 2" at the bottom. Measure up the size of seat, the fore-part and under sides together equaling half-seat measure plus 2". Come out from construction line  $1\frac{1}{2}$ " at w, then measure up the waist to the half-waist measure plus  $2\frac{1}{2}$ ", taking out an inch fish as illustrated. The right top side is cut a trifle small at the fork, as illustrated at 11 $\frac{1}{2}$ ". For the rest, use the quantities marked on the diagram as fixed quantities.

For other systems, refer to the books published by The John Williamson Co., Ltd., 42 Gerrard Street, W.1. W. D. F. V.

**TALENT.**—Originally, as in the Bible, a standard of value, and made familiar by the Parable of the Talents, this word has come to mean a special mental or physical gift of ability which raises one person above his fellows. Natural skill in music, painting, mathematics, in mechanical work or even in sports is described as a talent. The possessors of talents are many in number, the possessor of one talent in a very high degree is a genius. Throughout the Middle Ages education of the poor was a means of discovering talent which raised men of humble position to high rank at a time when the nobility valued education lightly. Modern education aims at the co-ordination of elementary with higher education, and affords opportunities for the development of talent in all ranks.

**TALK, LEARNING TO.**—(See VOCABULARY OF A CHILD, THE.)

**TALKING MACHINE, THE.**—A talking-machine (on either the phonograph or the gramophone principle) may be of use to the student or teacher of languages (1) for the purpose of analysing pronunciation, and (2) in connection with the practical teaching or acquisition of pronunciation.

In what follows it is to be understood that only first-rate machines and records are referred to; inferior machines and records are not of much use for educational purposes.

The utility of talking-machines for the analysis of *sound-quality* by ear is limited. The observer can only expect to be able to make anything approaching an accurate phonetic transcription of a talking record if he knows beforehand what kind of phenomena to look out for, and has a general idea (*e.g.* by having some previous knowledge of the language, or by having a text in alphabetic characters before him) of what the sounds are likely to be.

*Intonation* may, however, be determined with very considerable accuracy by systematic listening to talking-machine records, without such external assistance.

The auditive analysis of the pronunciation recorded by a talking-machine is carried out by continual repetition of short portions of the record (a few syllables at a time), and by lifting off the reproducing needle at numerous special points.

Some specialists in experimental phonetics have obtained interesting results by making very greatly enlarged reproductions of the lines on talking-machine records. Information as to these experiments will be found in the books by E. W. Scripture (see References, *infra*); in the catalogue of M. Henri Lioret (270, Boulevard Raspail, Paris), and in articles by Chlumsky in *La Revue de Phonétique*, Vol. I, 1911, and Vol. II, 1912; by Panconcelli-Calzia in *Vox*, Vol. II, 1913; and by Peters in *Vox*, Vol. V, 1913.

**Method of Using.** Talking-machines are used by many in connection with the practical acquisition of the pronunciation of foreign languages, though they cannot, of course, replace the first-rate teacher of pronunciation. The student may use the talking-machine (1) for the purpose of getting a general impression of the pronunciation of the language, and (2) for studying the pronunciation in detail with a view to learning to reproduce it himself. It is in this second aspect that the talking-machine is particularly useful.

The student should proceed as follows. He should, if possible, study the passage beforehand, and transcribe it phonetically. He should then go over the record word by word, repeating short portions of the record a large number of times. He should note carefully the chief differences between the pronunciation of the record and that indicated in his phonetic text. If he has been through a systematic course of "mouth-gymnastics" (see PHONETICS), he will then know how to reproduce with accuracy the sounds he hears issuing from the machine.

Intonation may be learned with sufficient accuracy without a detailed analysis by listening repeatedly to the intonation-tune of each short portion of the record.

Some teachers have found it useful to allow their pupils to make phonograph records themselves in the foreign language; the object of this is to enable them to realize better the nature of their mispronunciations, by comparing their records with records of the same passages made by natives.

D. J.

#### References—

- ROUSSELOT, ABBÉ, P. J. *Principes de Phonétique Expérimentale*. 2 Vols. (Paris.)  
SCRIPTURE, E. W. *The Elements of Experimental Phonetics*. (New York, 1904.)

**TALLEYRAND.**—(See FRENCH REVOLUTION, EDUCATION DURING THE.)

**TALMUD TORAH SCHOOLS.**—Talmud Torah is a rabbinical phrase signifying "the study of the Torah." The Hebrew word *torah* is usually translated "law"; but, as used since Rabbinical times (a century or so before the Christian Era), it has come to mean not merely the Pentateuch, or even the traditional Law based upon it, but the whole body of Jewish doctrine, teaching, and practice. A Talmud Torah School (or, as abbreviated, a Talmud Torah) is an elementary school in which Jewish instruction is given. But the name also defines the nature of the instruction given, and it means something different in Western Europe and America from what it does in Russia or Galicia. In Eastern Europe, where Jews live practically their own life in their own way—although this state of affairs is now disappearing—and are, therefore, engaged in petty trading rather than in industry or commerce, Jewish instruction, with the addition of a bare minimum of "secular" education, is all they need to have; and, therefore, the Talmud Torah is the day school and not merely the "religious" school. In Western countries, however, Jews—anyhow, outside their homes—live the normal life of citizens of the countries in which they reside, so that Jewish instruction has to be supplementary to, and is not coincident with, ordinary education. In England, the Jewish educational problem is solved in the following five ways—

1. By private instruction.
2. By the establishment of voluntary or non-provided schools, in which Jewish instruction is given before school hours and on Sundays. In London there are eight such schools, educating over 6,600 children.
3. By means of classes attached to synagogues, in which instruction in Hebrew and Jewish religion is given on Saturdays, Sundays, and sometimes one or two evenings during the week. In London there are twenty-four of these classes, educating about 2,700 children.
4. By means of evening classes held in the ordinary council schools, controlled in London by a special organization known as the Jewish Religious Education Board. The twenty classes belonging to this Board educate 6,300 children.
5. By means of Talmud Torahs or "Chedarim." The *Chedar* is a private Talmud Torah. There are sixteen Talmud Torahs in London, containing nearly 3,500 children. No figures for the "Chedarim" are available.

The Talmud Torah usually meets some five days a week, giving from eight to fifteen hours' instruction; in the other groups of classes, instruction is limited to some two and a half to four and a half hours a week. The *amount of time* given for Jewish teaching is, then, the first characteristic feature of Talmud Torah teaching. It follows that the parents who send their children to these schools are, generally, those who are keenest on Jewish education, and who are dissatisfied with the small amount of time devoted to it in what they regard as the less purely Jewish types of schools. These parents, whether in England or America, are invariably natives of Eastern Europe. Although generally poor, they will pay their few coppers a week for Hebrew teaching, and they often will make heavy sacrifices for this purpose.

**Curriculum and Method.** The second characteristic of Talmud Torah teaching is that religion and Scripture history are not generally taught as separate subjects, but only incidentally as they

arise out of the texts studied. These texts are principally the Hebrew Prayer-Book and the Hebrew Pentateuch. [By "religion" is meant here: (1) Jewish beliefs about God and Revelation; (2) moral teaching; (3) Jewish ceremonial and ritual practices.] In theory, this method is educationally sound, because it is in harmony with the genius of Judaism, which has always been intimately bound up with its expression in Hebrew literature. But, in practice, except in the best and most modern of the Talmud Torahs, the method frequently degenerates into a dull, lifeless routine, the end attained being a certain facile proficiency in reading the statutory prayers, and in translating mechanically the more important of them and portions of the Pentateuch.

With better organization and firmer public control, the tendency is for the Talmud Torah to become more modernized in its educational methods, and for these faults to survive only in the more backward of the institutions. Where improved methods are employed, and the ground covered in Bible translation is sufficiently wide, the indirect way of teaching religion and Scripture history is found to yield more permanent results than the direct teaching that has generally to be given in the other types of schools owing to the less amount of time available.

Another characteristic of Talmud Torah instruction is its *scope*. To the orthodox Jew, rabbinical literature is only less important than the Bible itself as a source of Judaism, but it is, with few exceptions, only in the Talmud Torahs that an attempt is made to give elementary instruction in this subject. The works taught are Rashi on the Pentateuch<sup>1</sup>, Mishna<sup>2</sup>, and Shulchan Aruch<sup>3</sup>. In a few of the classes the Talmud itself is taught to the older boys.

In some of the older types of Talmud Torah, the *medium of instruction* is still Yiddish. The reason for this is that the Talmud Torah teacher is, as a rule, of Eastern European origin, and cannot speak English with fluency. But the tendency in England and America is to discard Yiddish, and in some of the best of the schools English, and in a few Hebrew, is the sole medium of instruction.

**Teachers.** One of the most striking points of difference between the Talmud Torahs and the other classes is the type of teacher. In the latter, he, or she, is, almost without exception, a fully-qualified elementary teacher who has taken Hebrew as an extra subject. His equipment in Hebrew knowledge is often most elementary. This fact, sometimes coupled with suspicions as to his "orthodoxy," explains why the Russian or Polish parents have established in London and other large Western towns Talmud Torahs for the religious instruction of their children. The teachers in the Talmud Torahs are consequently men of their own type, strict in the practices of the Jewish religion and with considerable knowledge of the sacred Hebrew (and particularly Rabbinical) writings. Their methods of teaching are frequently crude and ineffective. The size of the class is in itself sufficient to render discipline difficult to maintain and individual attention impossible. But they have the confidence of the parents, and this is the secret of the growing popularity of the Talmud Torah school. The problem which faces the Jewish educational

reformer is to combine the equipment of the Talmud Torah teacher with the methods of the trained teacher, and no real progress in Jewish education can be looked for unless it be in this direction.

**The Position of Girls.** A word with reference to the position of girls in the Talmud Torah scheme. Until comparatively recent times, Talmud Torahs were for boys only, and their sisters had to rest content with a smattering of instruction, barely sufficient to enable them to follow the Hebrew Service in the Synagogue. This is now slowly being remedied, and not only are boys and girls taught together at a few of the smaller schools, but a beginning is being made with Talmud Torahs for girls exclusively. In London there are at present two, which have attained a high degree of efficiency. In one of them Hebrew is the medium of instruction. F. S. S.

**TASMANIA, EDUCATION IN.—Primary.** The early schools were denominational but subsidized by the State. A Board of Education nominated by the Government controlled the system almost continuously from about 1840 until the Education Act of 1885 placed affairs in the hands of a Government Department. A thorough reorganization was a result of inquiry in 1904, but the Tasmanian system is still less developed than those of the mainland States. There are seven classes with a preparatory department under the age of 5. With rare exceptions, the secondary course in the State high schools is not entered upon until after the age of 14. One form of handwork—modelling, paper-folding, or cardboard work—is taught in some schools, but systematic manual training is not general. Only two woodwork and six cookery centres have so far been provided, the enrolment for woodwork being 376 and for cookery 381. Medical inspection is under the care of two full-time and two part-time doctors with two school nurses, and it is anticipated that this staff is sufficient to allow each pupil to be examined once every two years.

**Secondary.** The State made no direct provision for secondary education until 1913, although from 1860 to 1890 the Council of Education, which later became the nucleus of the university, conducted public examinations, on the results of which were awarded scholarships tenable at private secondary schools as well as exhibitions to British universities. Two State high schools were established in 1913 at Hobart and Launceston, and two Intermediate high schools at Burnie and Devonport, the gross enrolment in 1918 being 1,119. In the high schools five courses are provided—teachers, secondary, commercial, industrial, and domestic. Each course lasts four years; at the end of the second year intermediate certificates, and at the end of the fourth year leaving certificates are granted.

The expenditure on secondary education, exclusive of buildings, was £8,108 in 1918 and on primary, £121,042. Education at the State high schools is free to those who pass the entrance examinations.

**Training of Teachers.** Previous to 1914 selected pupils from the primary schools were appointed "monitors" at the age of 14, and, after serving in this capacity for a year, proceeded to the training college for a two years' course. This was succeeded by two years' teaching-practice accompanied by tuition by correspondence; and a further period of two years at the training college followed.

<sup>1</sup> An eleventh century Commentary

<sup>2</sup> The earliest Rabbinical Code, second century.

<sup>3</sup> A sixteenth century Rabbinical Code.

The scheme has been partially remodelled, and candidates are generally required to hold the leaving certificate granted after a three years' secondary course. When they have completed a year's service as junior teacher, they may take a training college course of from six months to two years. If a student desires to obtain a degree at the University, his course may be extended over three years. A practising school and a model small school, after the pattern of a one-teacher country school, are attached to the college. In 1914 there were in training 64 junior teachers and 33 students.

**Private Schools.** In Tasmania private schools and their teachers must be registered. Since 1907 no person can be registered unless the Department is satisfied as to his fitness for the work. In 1918 there were 78 private schools with an enrolment of 6,542.

**The University** was established in 1889. In 1917 there were six professors, eight lecturers and demonstrators, and 93 students.

**Technical Education.** The School of Mines and Metallurgy at Zeehan is the chief institution, and is affiliated with the University. The schools at Mt. Lyell and Beaconsfield give special attention to mining, while other schools have been established at Hobart and Launceston. The government grants to the technical schools in 1918 amounted to £4,738; the expenditure on the woodwork centres was £476, and on the cookery £869. It will be seen that the importance attached to vocational education in this State is very small.

J. H. H.

**TASTE, THE SENSATION OF.**—This is evoked when certain substances are brought into contact with special receptors, known as "taste-buds," situated on the tongue and neighbouring parts of the mouth cavity. It is a comparatively primitive sense, and no doubt developed from the action of chemical substances on the skin of early organisms in the sea. There are only four distinct taste sensations—sweet, sour, bitter, and salt—although some would add metallic and alkaline. There is a degree of differentiation between the receptors; thus, the sensations of bitter and sweet may be abolished, leaving those of acid and salt intact. The sensations of taste are rarely experienced alone; they are usually accompanied by those of touch or pain, and especially of smell. In fact, many so-called tastes are really odours. The sense of taste has very little intellectual quality. It has no distance element, such as even smell has. Although stimulation of the taste receptors is clearly of a chemical nature, it is impossible as yet to state what are the properties of a substance which cause it to have a particular taste, nor even why it has a taste at all.

W. M. B.

**TAYLOR, JEREMY (1613-1667).**—A famous scholar and preacher, who became Rector of Uppingham in 1638. He lived in seclusion after 1642, and in 1647 published his famous plea for toleration and freedom of opinion in *The Liberty of Prophesying*. In 1650 he wrote his *Life of Christ*, and *The Rule and Exercises of Holy Living*, followed in 1651 by *The Rules and Exercises of Holy Dying*. All these works afford examples of the writer's remarkable eloquence. He spent his last years in Ireland, and died at Lisburn.

**TEACH, THE RIGHT TO.**—(See COMMON LAW AND EDUCATION, THE.)

**TEACHER, EX-PUPIL.**—When the number of candidates qualified for admission was considerably in excess of the places available in training colleges, a large number of those who had completed their apprenticeship found themselves unable to profit by the "Queen's Scholarship" or "King's Scholarship" (as the Government grant for training was called in the reigns of Queen Victoria and King Edward VII respectively, before the title of the qualifying examination was altered to "Preliminary Certificate Examination").

Three courses were then open to these teachers. One was to leave the teaching profession; the second was to reconcile themselves to the prospect of continuing as partially qualified teachers permanently; the third, and best, course was to complete their qualifications by becoming certificated but non-collegiate teachers. In this last case they would have to teach as uncertificated teachers for a period of at least two years, after which they might present themselves for the "Acting Teacher's Certificate" examination, on passing which, they became qualified to continue their career without being necessarily penalized for having been denied a training college course. (See CERTIFICATED TEACHER.)

Ex-pupil-teachers, then, are those uncertificated teachers who have completed the first, but not the second, stage of their professional training, and who have successfully passed an examination qualifying for entrance to a training college. They receive a salary intermediate between that of a pupil-teacher and that of a certificated assistant teacher. In 1919, Provisional Minimum Scales of Salaries were suggested for these teachers, the minima being £100 (men), £90 (women), the maxima £160 (men), and £150 (women), the annual increment being £6.

For the purposes of Board of Education grants to a school, an ex-pupil-teacher is counted as able to teach thirty children. The employment of ex-pupil-teachers is therefore financially more economical than that of fully certificated teachers in small schools. From the point of view of the efficient working of the schools it is necessary to consider that an ex-pupil-teacher cannot hope to become a head teacher. He (she) is therefore likely to be increasingly depressed by the lack of prospects as age creeps on, and the importance of this depression on the value of the work done cannot easily be estimated. Ex-pupil-teachers are entitled to the benefits of the Teachers' Superannuation Act (1918) (*q.v.*)

A. C. C.

**TEACHER, PERIPATETIC.**—Certain subjects in the curriculum are occasionally found to be too specialized for the ordinary teacher, and at the same time the number of lessons in any one of those subjects is too small to occupy the whole efforts of a special teacher. In that case, a qualified teacher is appointed to take the lessons in a certain group of schools, and he visits the schools in turn, according to a definite scheme, and gives the lessons in his subject. For example, if a local education authority decided to introduce shorthand into certain elementary schools, it might be advisable, supposing there were five such schools, to appoint a teacher of shorthand to visit one school on Monday morning and Wednesday afternoon, another school on Monday afternoon and Thursday morning, a third school on Tuesday morning and Thursday afternoon, and so on, to give all the necessary

essons. Such a teacher would be appointed at probably a higher salary than an ordinary class teacher, especially if, in addition to his knowledge of shorthand, he possessed the ordinary qualifications of a teacher.

There is a natural tendency for peripatetic teachers to become unnecessary, because the number of people sufficiently qualified to teach any subject rapidly increases once that subject is introduced into the schools; and naturally it is easier to plan the school work if the head teacher has to consider only his (her) own staff, and is not limited by the infrequency of the visits of a peripatetic teacher. Thus, science, physical exercises, and needlework subjects formerly taken by peripatetic teachers are now taken in almost all schools by members of the permanent school staff.

A. C. C.

**TEACHER, PUPIL.**—A pupil teacher, is roughly speaking, an apprentice in the profession of teaching. He is bound by agreement to perform certain duties, and he receives suitable instruction and a small salary.

The first Government grant for pupil teachers in England was made in 1847, almost ten years after Dr. Kay (better known as Sir James Kay-Shuttleworth) (*q.v.*) had visited Holland to investigate the system in vogue there. He reported to the Committee of Council of 1839–1840, in whose Minutes appeared the following description of a pupil teacher: "A young teacher, in the first instance introduced to the notice of the master by his good qualities, as one of the best instructed and most intelligent of the children; whose attainments and skill are full of promise; and who, having consented to remain at a low rate of remuneration in the school, is further rewarded by being enabled to avail himself of the opportunities afforded him for attaining practical skill in the art of teaching, by daily practice in the school; and by the gratuitous superintendence of his reading and studies by the master, from whom he receives lessons on technical subjects of school instruction every evening."

This description still holds true of pupil teachers, with such modifications as are involved in the great changes introduced on the legal or administrative side, and reflected on other sides of pupil-teachership. At first, the agreement made was between the pupil teacher and the master. The relations involved were personal and human, not merely official.

In 1861, the Revised Code destroyed these personal relations by altering the agreement, so that the pupil teacher was apprenticed to the managers of the school. The reasons underlying the change were the natural corollary of the economic ideas underlying the whole Code, and the results of the change in respect to the popularity and effectiveness of pupil-teachership were the natural counterpart of the results on the general work of the schools. Head teachers soon found it impossible to give the proper "superintendence of reading and studies."

With the establishment of school boards in 1870, and the consequent further change of master—the pupil teacher now being apprenticed to the school board—the weakness of the "revised" state of affairs was remedied by the institution of "centres" or "central classes," which the pupil teacher attended for that portion of the week when he was not engaged in teaching. It was thought, however, by the Board of Education, after a long

trial of the "centre" system, that the function of pupil-teachers' centres would be more adequately performed by secondary schools. Experiments in this direction led to the practical abolition of the pupil-teacher system, though theoretically it continued to exist side by side with the new method of preliminary training, viz., the appointment of bursars and student teachers (*qq.v.*).

**Revival of the System.** Recent years have witnessed an attempt, which is meeting with some success, to revive the pupil-teacher system. It is interesting to notice that the cause of the twentieth century revival is identical with that of the nineteenth century establishment of the system (*i.e.* the need for increasing the supply of teachers). It was found that, in rural districts, where enough secondary schools are not yet available to give a secondary education to all who can profit by it, the number of entrants into the teaching profession has markedly decreased.

The system has therefore been restored; but educational progress is marked by the contrast between the rigidity of the 1847 scheme, with its single period of apprenticeship (five years), and the elasticity of the 1913 scheme, which provides a normal course of two years, with alternative courses of one, three, or four years. The age of entry has altered from 13 years to any age between 14 and 17 years.

The local education authorities which employ pupil teachers are chiefly county education committees. County boroughs and boroughs usually have secondary schools from which to obtain candidates for the teaching profession. The general education of the pupil teacher is, at the present time, provided by a variety of methods, including special classes in secondary schools; special schools known as pupil-teachers' centres; and, in thinly-populated areas, the employment of peripatetic teachers (*q.v.*).

Pupil teachers receive a small salary, which is usually increased at the end of each year of apprenticeship, up to £50 for boys and £40 for girls for the last year. The salary slightly varies from these amounts in different areas.

A. C. C.

#### Reference—

"Memorandum on the History and Prospects of the Pupil Teacher System." (Board of Education Circular 573.)

**TEACHER, STUDENT.**—A student teacher is a boy or girl over 17 years of age, who has been receiving continuous instruction in an efficient secondary school for not less than three years, who has declared his (her) intention to become a teacher in a public elementary school, who is certified by the head master or mistress of the secondary school he (she) has attended as being in character and ability a fit and proper person to be a teacher, and who is recognized by the Board of Education.

Other conditions of recognition, are—

(i) that the candidate for recognition has passed an examination qualifying for entrance into a training college, or, if he (she) has to pass in one or two (certainly not more than two) subjects, he (she) must be certified by the head teacher of the secondary school as likely to pass within a year;

(ii) that the local education authority shall have brought into operation a scheme approved by the Board of Education "for the supervision



and training of student teachers, and for such continuance of their general education as may be possible in the circumstances."

It is not necessary that a candidate for recognition as a student teacher shall have been a bursar.

The period of recognition of a student teacher does not usually exceed one year. If the student teacher does not proceed to a training college, but wishes to be recognized as an uncertificated teacher, the period of service must be one year. In special circumstances recognition may be continued for a second year.

A student teacher counts, for purposes of grant, on the staff of an elementary school as being able to take charge of thirty scholars. As, however, he (she) does not attend at the elementary school on every occasion when the school is open, and as he (she) has to be actually trained in teaching, no class is permanently committed to the care of the student teacher.

The salary of a student teacher is slightly larger than the maintenance grant paid to a bursar, varying, according to the locality from about £40 to about £60. The most valuable item of the return made by the local education authority for the services rendered is the careful training given to the student teacher. A. C. C.

**TEACHER, SUPPLEMENTARY.**—This is the variety of teachers formerly known as "Article 68," from the fact that the recognition of such teachers as members of the staff of a public elementary school was according to the conditions stated in Article 68 of the code for 1904 and previous years.

These conditions were that the teacher must be a woman of more than 18 years of age, specially approved by the inspector for capacity in teaching. She must also produce a satisfactory medical certificate. For a time it was necessary that successful vaccination should be placed to the teacher's credit, but this qualification is now superfluous.

A supplementary teacher is recognized only for a particular school, and as a rule only as a teacher of pupils under the age of 8 years. In a rural parish, if the total school population does not exceed 100, a supplementary teacher might be allowed to teach the lowest class of older scholars.

The employment of supplementary teachers is economical in a false sense. If a teacher is required for not more than twenty pupils (the limit for which a supplementary teacher is recognized) one might adopt Mr. Robert Lowe's claim for the system of payment by results, and say "if the supplementary teacher is good, we have secured a bargain; if she is not good, the expenditure on her salary is small. In any case, therefore, the appointment of a supplementary teacher is advisable." The truth is that the expenditure to be considered is not the salary of the teacher, but the energy of the child, which must not be wasted.

How completely untrained a supplementary teacher might be is revealed by a regulation in the code which distinguished as a special group those who had been under efficient instruction for some period after attaining their fourteenth year. In fact the "special approval of the teacher for her capacity in teaching" provided only a theoretical

safeguard against the introduction of incompetent persons.

Under the present regulations, the local education authority is bound to provide suitable instruction for supplementary teachers, to enable them to qualify as uncertificated teachers, and the teachers must take advantage of it.

For a short time men were recognized as supplementary teachers, provided that they declared their intention of qualifying as uncertificated teachers within two years of the date of their recognition. The experiment was not successful and is not likely to be repeated.

The salary of supplementary teachers ranges from £50 to £120 a year. A. C. C.

**TEACHER, SUPPLY.**—A supply teacher is distinguished from a permanent teacher by the conditions of appointment.

It frequently happens that a temporary gap in a school staff occurs on account of the illness of one of the permanent teachers. If the gap is likely to last so long that it cannot be filled by extra effort on the part of the other members of the staff without unreasonable strain, a temporary teacher must be obtained. In almost every district there are ex-teachers, frequently married women who have left the profession on marrying, who are willing to teach for a short time, and are glad to have the feeling of freedom which the conditions of appointment of a supply teacher affords, these conditions being that the appointment lapses either without notice, or at a day's or a week's notice. These teachers inform the local education authority of their willingness to act as supply teachers, and are called upon as required.

From the nature of the case, a supply teacher receives no salary, but is paid at a certain rate per day or per week. Even when the pay is stated as a weekly rate, it is in practice a daily, or even a half-daily, rate. The sum varies in different areas, but it is generally such that if a supply teacher were continuously engaged throughout the year, he (she) would receive an amount equal to the minimum salary for permanent teachers of the same professional status. A. C. C.

**TEACHER, UNATTACHED.**—An unattached teacher is a salaried supply teacher, engaged in regard to salary and tenure of appointment on the same footing as a permanent teacher; but, not being assigned to any particular school, he (she) is liable to be sent to any school in the area where his (her) services are required. There is a certain gambling element about this sort of appointment. Against the possibility of being sent to a distant school and spending much time in travelling, the teacher sets the possibility of having a few days at home on full pay between leaving one school and starting at another. There are roving spirits who like serving on the staffs of different schools and seeing different children, but from the point of view of the professional idealist, who values the personal link between teacher and taught, the work of an unattached teacher is unsatisfactory. A. C. C.

**TEACHER, UNCERTIFICATED.**—An uncertificated teacher must have passed the preliminary examination for the elementary school teachers' certificate, or some equivalent examination, or

have qualifications that, in the opinion of the Board of Education, are substantially equivalent for purposes of teaching.

Although it is possible to be an uncertificated teacher without having had previous experience in teaching, a bursar (*q.v.*) cannot become an uncertificated teacher without having had a year's training either as a student teacher or in a training college, so that it is rare for an uncertificated teacher to be quite inexperienced in teaching.

A candidate for recognition as an uncertificated teacher must be over 18 years of age, and must produce a satisfactory medical certificate.

The security of tenure which uncertificated teachers enjoy is, in actual practice, little less than that of certificated teachers. All uncertificated teachers are paid according to the same scale of salaries by any given local education authority. Uncertificated teachers are eligible for pension when the time for retirement comes, calculated on the same basis as their certificated colleagues.

An uncertificated teacher may become certificated by passing the certificate examination and the more severe medical examination. Most local education authorities provide the necessary classes for their uncertificated teachers, and the large majority of the younger teachers profit by the opportunities afforded.

A. C. C.

**TEACHERS' AGREEMENTS.**—It is of the first importance that the terms of contracts of service between teachers and their employers should be reduced to writing and embodied in a duly executed memorandum of agreement.

In schools controlled by the Board of Education and known as Public Elementary Schools, it has been made a condition of receiving a Government grant, that "teachers must be employed under written agreements, provided that in the case of a school provided by a Local Education Authority, a teacher may be employed under a minute of the Authority" [*Code of Regulations, 1919, Article 15*]. The schools "provided" by an Authority are those for which the Authority are entirely responsible, and the teachers in such schools are "officers" of the Authority. A formal agreement is not usually made in respect to municipal and other officers. They are appointed by minute, and a copy of the minute (with a notification of the appointment) is forwarded to the officer concerned.

Teachers in schools not "provided" by an Authority, but "maintained" by an Authority, must be employed under a proper, written agreement. Such schools are known as non-provided schools, and are usually the property of trustees. The schools are governed by managers; but, with exceptions, the whole cost is borne by the Authority in whose area the school is situated. The parties to the contract of service in these schools are the managers, the Local Education Authority [for the purpose of giving consent to the appointment under Sect. 7, Sub-sect. 1 (c) of the Education Act, 1902], and the teacher. In some cases, the Local Education Authority decline all responsibility for such agreements, and the contract is then validly made between the managers and the teacher. The whole body of managers, including foundation and representative managers, must execute the contract either individually or by resolution certified by the official correspondent or chairman.

**Board of Education Requirement.** Whether the appointment of teacher is made by minute or

written agreement, the Board of Education require the inclusion, either expressly or by reference, of one of the following clauses—

1. The teacher shall not be required to perform any duties except such as are connected with the work of a Public Elementary School, or to abstain outside the school hours from any occupations which do not interfere with the due performance of his duties as teacher of a Public Elementary School.

2. The teacher shall not be required to perform any duties except such as are connected with the work of a Public Elementary School, and with the instruction of pupil-teachers, or to abstain outside the school hours from any occupations which do not interfere with the due performance of his duties as a teacher of a Public Elementary School or with the instruction of pupil-teachers.

The second clause must be included only if the teacher is required to instruct pupil-teachers who are not receiving instruction in a recognized centre. In all other cases, the first clause must be used.

The remuneration to be paid should be explicitly set out. Commonly, this is regulated by a scale of salaries, and in such cases the scale should be incorporated in terms or by reference.

A provision giving the teacher the right of inspection of trust deeds, charters, orders, and other relevant documents is sometimes inserted.

The minimum holidays of the school are usually indicated; and specific duties of the teacher, particularly with regard to religious instruction, are commonly outlined.

**Terminating Agreements.** The clause defining the method of terminating the agreement requires careful drafting, as the powers of managers are limited by statute in this respect. Where the contract is terminated on "grounds connected with the giving of religious instruction in the school," the managers may determine the matter without the consent of the Local Education Authority, the question whether the contract is terminated on such grounds being one for the courts to decide; but, where the contract is to be terminated on other grounds, the consent of the Local Education Authority is required.

The following clause is comprehensive, and may serve as a guide—

*This Agreement may be terminated after ..... calendar months' previous notice in writing to that effect has been given by either the managers or the teacher to the other, and, if such notice be given by the managers, it shall be given in accordance with the decision of a meeting convened by notice sent to every manager four days at least before the meeting, stating that the termination of the teacher's agreement will form part of the business of such meeting; but this Agreement shall not be terminated by the Managers unless there is a reasonable cause for so doing, such cause being stated to the teacher in writing. Provided always that such notice, except when given on grounds connected with the giving of religious instruction in the school, shall not be valid unless the consent of the Local Education Authority has been obtained thereto.*

The usual period of notice is, in the case of head teachers, three months and, in the case of assistant teachers, one month. The signatures of the parties should be witnessed, and adhesive stamps may be used.

**Provided Dwelling-house.** Formerly, it was common for managers and School Boards to provide a dwelling-house for the teacher. If this is still provided as part of the emoluments of the office,

appropriate clauses should be incorporated in the memorandum, and particular care should be given to the question of liability for rates, taxes, repairs, and other outgoings.

It is, however, now more usual for the dwelling-house to be the subject of a separate agreement. This should deal with the questions of rent, rates, taxes, repairs, water supply, and all outgoings. Care should be taken to ensure that the period of notice should coincide with the period required under the main agreement. The memorandum must be duly signed, witnessed, and stamped.

**Home Office Schools.** In Home Office Schools, the Secretary of State requires that there should be a written agreement with the teachers employed; or, where the appointment is made by a Local Authority, such appointment must be by minute of the Authority. The Home Secretary has further indicated that, in the case of the dismissal of a teacher for misconduct, managers are required to give due notice of the charge against him, and to afford an opportunity of the teacher being heard in his own defence. Provision for these requirements should, therefore, be made in such agreements.

**Poor Law Schools.** In Poor Law Schools, the consent of the Local Government Board is required to the dismissal of a teacher of more than one year's service, and a provision for this must be made in the agreements with teachers in such schools.

**Endowed Schools.** In Endowed Schools, agreements with teachers are frequently governed by the schemes made for the government of the school. Usually, in school deeds, orders and schemes, elaborate provisions are made for a judicial dealing with the dismissal of the head master by the governors. Assistant teachers were formerly generally subject to appointment and dismissal by the head master; but the Endowed Schools (Masters) Act, 1908, has effected an important change in this respect. The Act provides that any master, by whomsoever appointed, is deemed to be in the employment of the governing body of the school. Subject to any special provision in any scheme relating to the school, the dismissal of a master can take effect only at the end of a school term and after at least two months' notice. In any agreement made with such masters, these statutory provisions must be observed, and the proper parties to the agreement are the governors and the master to be appointed. It is to be noted that the schools mentioned in the Public Schools Act of 1868 are exempted from the provisions set out above.

Schools under the Charitable Trusts Act are required to conform to the provisions of the statute, and one of the conditions of the dismissal of a teacher is that he should have an opportunity of being heard in his own defence before dismissal takes effect.

**Secondary Schools and Colleges.** In Municipal Secondary Schools and other higher schools and colleges provided by Local Education Authorities, agreements are either made between governors and teachers, or the teacher is appointed by a minute of the Authority. Many Authorities provide for the hearing of the teacher in his own defence before dismissal, and permit him to be attended by "a friend," and to submit evidence when the dismissal is in consequence of a charge of misconduct; and a similar procedure is observed in the case of teachers in Public Elementary Schools under such Authorities.

A. A. T.

**TEACHERS AND DEMONSTRATORS, UNIVERSITY.**—"University Teachers" differ from other persons engaged in teaching in the university only in being appointed by Syndicates and Boards. The conditions of appointment vary. For example, at Cambridge, the Teachers' Training Syndicate state no period during which their university teacher shall hold his office; nor does the Indian Civil Service Board; nor the Board of Military Studies. The Forestry Committee, however, limits the appointment to five years, and the number of appointments appears in this case to be unlimited.

**University Demonstrators** are appointed by professors, with the consent of the vice-chancellor, for periods not exceeding five years. There are in some cases senior as well as junior demonstrators. Salaries vary from £200 to about £500. The duties will best be understood from the two following statements—

*Demonstrator in Anatomy:* to assist the professor in giving practical instruction and in superintending the work of students in the dissecting room.

*Demonstrator in Chemistry:* to assist the professor in giving catechetical instruction, in teaching the use of apparatus, and in superintending the work of students in the laboratory. A. C. C.

**TEACHERS AND PARENTS, RELATIONS BETWEEN.**—(See PARENTS, THE RELATIONS BETWEEN TEACHERS AND.)

**TEACHERS IN ELEMENTARY SCHOOLS.**—The definition of elementary school given in the article HEAD TEACHER (*q.v.*) applies not only to the public elementary school, with the various manual training, cookery, laundry, and housewifery centres which supplement its work, but also to kindergartens and preparatory departments of secondary schools.

It will be convenient to treat under this section teachers in schools for the blind, deaf, physically defective, and mentally defective, teachers in reformatories and industrial schools, army schoolmasters and naval schoolmasters, even though many of these are engaged in giving a course of instruction which carries the pupil on to his sixteenth birthday. The reason for including these teachers is that, on account of the peculiar circumstances obtaining in the schools, the work proceeds less rapidly and continuously than in an ordinary secondary school, and must be compared rather with that of an elementary school. The preliminary training, too, is in the great majority of instances more closely allied with that of a teacher in an elementary school than that of a teacher in a secondary school.

In England, a fully qualified teacher in an elementary school is one who possesses the certificate of the Board of Education. Such a teacher must, usually, have passed through various stages, selected from the following: monitor, pupil-teacher, ex-pupil-teacher, bursar, student-teacher, uncertificated teacher, training college students (*qq.v.*). A. C. C.

**TEACHERS IN SECONDARY SCHOOLS.**—The schools intermediate between elementary schools and tertiary schools or universities deal with pupils whose ages range from 6 to 19 years. In respect of the age of the pupils, then, these secondary or intermediate schools overlap elementary schools

at the lower end and tertiary schools (*e.g.* school of art, technical college, training college for teachers) at the upper end. This statement is only true of secondary schools taken as a whole. In many cases the preparatory department of a secondary school (*i.e.* the department dealing with pupils under 10 years of age), is a separate institution in most ways. In a still larger number of cases, the pupils leave the school in their 17th year, before reaching the age of entrance into tertiary schools or universities.

Members of each type of secondary school teacher can be found in most secondary schools.

The functions of the secondary school vary for different pupils, as well as between school and school. The main functions are capable of being expressed in two formulae: (1) To give a general education to their pupils. (2) To discover the special aptitude of each pupil, and to assist the development of that aptitude until the pupil is ready to leave school and proceed either to a place of tertiary education, or to a definite position in a profession or trade. Our English secondary schools are not yet sufficiently differentiated to cover the whole ground available for specialization, but they do realize the need for specialization, and in a more or less comprehensive way they realize the need for further avenues of specialization.

Secondary schools are not, on the whole, so rigidly governed in their detailed working as elementary schools by regulations of the Board of Education. Thus, though there are, in secondary schools, teachers of varying grades of qualification there are no such differences of status as are constituted in elementary schools by the regulations of the Board. The teacher who possesses a diploma in teaching is not necessarily of a higher grade than a teacher who does not possess one. Knowledge of the subject taught is usually the great desideratum. We shall, therefore, proceed to discuss the various types of teacher, differentiating the types according to their function in the school. (See INFANTS, THE TEACHER OF; TEACHERS, PERIPATETIC; and TEACHERS, SUPPLY.)

**Head Master.** The head master of a secondary school is directly responsible to the governing body of the school for the efficiency of the organization and teaching. He usually takes some share in the teaching, and delegates to one of his staff certain of the duties of supervision which, in an elementary school, are generally retained by the head teacher.

The functions of the head master in relation to the management of the school, the parents of the pupils, the examination of the pupils' work, and the general progress and behaviour of the pupils differ from those of a head teacher in an elementary school in three ways—

1. The detailed examination of the pupils' work must be entrusted to the specialist teachers. The head master can, of course, use his own judgment as to the comparative values of the work in different subjects, and as to the value of each specialist's estimate of pupils' abilities.

2. The head master has, in many cases, power to recommend appointments and dismissals of his staff. The amount of this power varies, but it perhaps tends to decrease as the schools come more under the control of public authorities.

3. The head master has, in many cases, the power to expel a boy for misconduct. This power is also decreasing.

The head master, then, may have any degree of power, from that complete autocracy which enabled Dr. Busby to justify himself in keeping his head covered in the presence of his Sovereign, "lest the boys should be misled into thinking any one, even the King, more powerful than the head master," to the limited authority of a head master in a municipal secondary school.

The salary of a head master is calculated in different ways. Sometimes a fixed amount is offered. The lowest limit is probably about £400, the highest amount is about £2,500, in the greatest public schools. Sometimes there is a scale of salaries, ranging from a minimum of £300 to £400 up to a maximum of £500 to £800. In other cases a certain fixed salary is offered, say £50 or £100 or £150, and a capitation fee of £1, or £1 10s. for each pupil in the school is added. Or there may be a larger fixed amount, and the capitation fee is paid for each pupil after the first fifty or hundred. The capitation fee system has the inherent defect, that, until the school is absolutely trusted by the parents of the pupils, the head master cannot afford to reject unsuitable applicants for admission lest suitable applicants be deterred, nor can he exercise his right of expulsion without injuring his income. With the steady growth of public control of secondary schools, which has become increasingly evident in the last few years, the defects of "farmed" schools will gradually disappear. It will be regrettable if head masters cease to have the virtues of the autocrat.

**Head Mistress.** Many of the statements about head masters apply to head mistresses. It is approximately true to say in regard to salaries that, in municipal secondary schools, head mistresses are paid about 75 per cent. of the corresponding salaries of head masters. Figures are not available for schools not under public control. The Burnham Report offered no scale for head teachers but recommended as minima: £600 (men), £500 (women).

**Senior Mistress.** A mixed school is usually under a head master. In this case the senior mistress acts towards the girls as a head mistress in matters of discipline. A senior mistress in such a case is sometimes admitted as an associate of the Head Mistresses' Association. She does not usually receive a salary much above that of an assistant mistress, if indeed it is at all above that of a senior assistant mistress in a girls' school.

**Form Master.** It is the English tradition to group pupils together in thirties, each treated as a distinct whole. If a pupil is in a given thirty on his total work, he is in that thirty for each subject.

Each group is, in English secondary schools, called a Form. For purposes of registration of attendance, recording of marks for work and conduct, issuing of reports on pupils, each Form is under the charge of a Form master. In the lower Forms always, and in the upper Forms often, the Form master takes a large share in the teaching of his Form. It does occasionally happen that a Form master never teaches his Form, but such a situation is rare.

The amount of teaching which a Form receives from its own master depends upon the capabilities of the master, as well as upon the needs of the Form. If the master is a specialist, he may be required elsewhere for a large proportion of his time. Or if the Form needs specialist teachers, it must be taken by a large number of masters, of whom the Form master is only one.

Generally speaking, the lower Forms, containing pupils below 13 years of age, do not need to be taught by specialists only, and the frequent personal contact with a teacher responsible for their morals is of great value to the pupils.

Salaries of Form masters who are not also specialists tend to be, in the average, slightly lower than those of specialists. They range from £150 per annum (rarely lower in "recognized" schools), to about £300.

**Form Mistress.** The duties of a Form mistress are exactly parallel to those of a Form master. Her salary may be estimated as between 70 and 80 per cent. of that of a similarly qualified and occupied Form master.

**Specialist Teacher.** Mathematics, English, classics, modern languages and science, are all subjects in which secondary school pupils may specialize. In some of them, especially perhaps in languages other than English, it is important that the work shall be taken by a teacher who has specialized. In any case, it is important that the teacher shall have made such progress in the knowledge of that subject as will enable him to feel an intellectual enthusiasm himself for studying it, and to kindle in the minds of his pupils a corresponding enthusiasm. That the specialist teacher has taken a university degree may be evidence that he has some enthusiasm for learning, though even this is by no means certain, but it is not evidence that he has any capacity for teaching children. The young graduate must go through some course of training before he acquires the necessary facility in managing children. He may have had the training at home, at school, or at a training college; if not, he may either take a post-graduate course at a training college, he may be trained at a school, or he may take a post and train himself. The second course may be combined with the third in that the head master may either directly, by personal supervision, train a paid member of his staff just as he would train a student; or he may by indirect means arrange that the tyro shall train himself effectively. Such a plan is that of getting a brilliant young graduate and putting him to teach the oldest pupils, who are already alert and ready to respond to enthusiasm, and gradually introducing him to the more difficult cases.

If a specialist teacher is to become fitted for the post of head master, he must have some experience of other aspects of school work besides the teaching of his special subject. This leads us to consider the relations between the Form master and the specialist.

It is a good thing for a school that the whole of the teaching of any subject throughout the school shall be co-ordinated. To this end it is well for the teaching done by the Form masters in a given subject to be approved by the principal specialist in that subject. But there is a co-ordination between the different subjects studied during a particular term, as well as the progressive co-ordination mentioned. This co-ordination is the affair of the Form master, if it is to be controlled at all.

The outstanding fact is that both Form Master and specialist must work in harmony. The actual relations between the two are, of course, determined officially by the head master, but in practice they are usually personal.

Salaries of specialists vary according to experience and success. A few reach a maximum of £800, but probably £500 represents a commoner maximum,

with probably £400 as a rough average maximum. These salaries are for assistant masters. Assistant mistresses receive a lower salary.

**House Master.** In boarding schools the boys usually live in houses. Each house is under the charge of a house master, who is not only a hotel-keeper but also guardian of the morals of the boys in his house. His influence on the house is exercised both directly and indirectly, and perhaps the indirect influence of his choice of prefects and other boys to whom his authority is delegated, and of the supervision which he exercises without his pupils becoming conscious of it, is more important than the direct influence of his personal contact with the members of the house in the various forms in school, or with the house as a whole.

**Burnham Report.** In October, 1920, the Burnham Committee issued a report on the salaries of secondary school teachers. Two scales were made: A, graduates; B, non-graduates; and two rates: (1) London, (2) England and Wales (outside London). London, assistant masters (graduates), £290-£15-£550; country, £240-£15-£500. London assistant mistresses (graduates), £275-£15-£440; country, £225-£15-£400. London, non-graduates (men), £210-£12 10s.-£450; country, £190-£12 10s.-£400. London, non-graduates (women), £197 10s.-£12 10s.-£360; country, £177 10s.-£12 10s.-£320. There are also the following additions: £25 to the minimum and £50 to the maximum for a good honours degree (first-class); £20 for one year's post-graduate training not beyond the maximum; non-graduates with three years' training, £12 10s. not beyond the maximum; special allowance for senior mistress of a "mixed" school; posts of special responsibility, £50 extra (men), £40 extra (women) during tenure. A. C. C.

**TEACHERS IN UNIVERSITIES.**—A man teaching in a university, may be designated professor, reader, lecturer, university teacher, or demonstrator (*qq.v.*), according to the conditions of his appointment. If he is engaged in teaching, but not under conditions officially recognized or determined by the university authorities acting as such, he may be either a college tutor or college lecturer, or a private coach.

It is possible for a man to be teaching as a professor, a college tutor and a private coach at different hours of the same day; but this is not at all a necessary nor usual conjunction. If such a possibility were actually realized, it would serve to illustrate the fact that such a man exercised the three groups of functions that appertain respectively to his being a member of the university, a member of one of the constituent colleges, and a private individual.

Lest it should be thought unworthy of a professor to act as a private coach, we must remind the reader that the universities occasionally receive pupils of such ability that only teachers of the highest brilliance could give them the guidance they need. This personal guidance plays an important part in the work of the university, and its value cannot be too highly estimated. The university provides for the teaching of classes; so does a college, but a college also provides a certain amount of tuition, more or less individual. Those who need further help must have resort to private tuition or "coaching," in order to pass their examinations with the desired degree of success. A. C. C.

**TEACHERS' PROVIDENT SOCIETY, THE.**

The National Union of Teachers was established in 1870, when teachers' salaries throughout the country were very meagre, and when a superannuation scheme for teachers was but a vision. The founders of the Union foresaw that some immediate provision was necessary to help teachers during sickness and old age. At the York Conference of the N.U.T. in 1875, a resolution was adopted declaring "that a Provident Fund should be established forthwith." The qualification was membership of the N.U.T., a condition which still exists and has been helpful to the success of both organizations.

Until 1888, the work of the Provident Fund was carried on as part of the general business of the Union; but the vast increase in the business of the Society compelled the appointment of a managing secretary in the person of Mr. A. Golding, although the general secretary of the N.U.T. is still general secretary of the Society.

Since his appointment, the work has increased by leaps and bounds, and additions have been made to the original scope of the Society's objects. Primarily intended as a sick benefit society, it now issues general life assurance and endowment life assurance policies up to a maximum of £300; pension policies; and insurance policies on death of wife (or husband) of members.

The Sick Pay Branch is divided into (1) an ordinary branch conducted on the lines of ordinary friendly societies; and (2) a Deposit Branch, worked on the general principles governing deposit societies.

The Society claims that, owing to its link with the N.U.T. and use of the organization of the Union, it is able to offer better terms than other societies.

The success of the work is shown by the following figures—

Reserve Fund . . . . .	1,650,000
Annual Income . . . . .	40,000
Number in Sick Branches . . . . .	54,000
Number insured for various Life Policies . . . . .	17,500

The surplus funds are partly invested in Government and Colonial Stocks, but a greater part is lent on mortgage of houses. Preference and special terms are given to members of the Society.

The work of the Society is carried on at Hamilton House, Mabledon Place, London, W.C.1.

The Society is democratically managed. The Board of Management of twenty-one is elected by the members, one-third retiring annually, but being eligible for re-election.

The Society has become an approved section under the National Insurance Act. Its scope and usefulness are, therefore, considerably increased. Membership of the State section was practically confined to the 90,000 teachers who are either ex-P.T.'s (Article 68 s), student teachers, or certificated teachers, who did not accept the Government's Superannuation Act. The success of this branch of the Society's work was assured, for over 50,000 joined during the first year. As a result of the introduction of the Superannuation Act of 1918, certificated and uncertificated teachers have nearly all come out of the State section, which now has a membership of 12,000. The Society has recently opened a Convalescent Home at Matlock for its members.

Owing to its able management, continuous progress, financial and actuarial soundness, and the devotion of the local secretaries throughout the country, this Society is a safe investment and a

secure safeguard for the teachers of England and Wales. A. E. C.

**TEACHERS' REGISTRATION COUNCIL, THE.**

—The Teachers' Registration Council, formed in 1912, is the result of long-continued efforts to establish the work of teaching on a true professional footing. The first of these efforts dates from 1846, in which year the College of Preceptors was founded with the aim of "raising the standard of the profession by providing a guarantee of fitness and respectability." The list of members of the College would thus include the names of those who were fitted to teach, and the test of fitness would be one imposed by teachers themselves and not by an outside body. This scheme, however, applied to a comparatively small number of teachers, since already the State was undertaking the provision of teachers for certain schools. The movement in favour of registration thereafter tended to concern teachers in secondary schools, endowed or private. Bills in 1869, 1879, 1881, and 1890 were promoted with the object of establishing a Register of Teachers, but all were designed only for a single type of teacher; and did not propose to include in the register the names of university, elementary, or specialist teachers. The various Councils proposed were representative mainly of secondary teachers, and it was not till 1890 that it was proposed to recognize training in teaching as part of the teacher's professional equipment. In 1894, the Royal Commission on Secondary Education recommended a single register for all teachers, admission to be granted on qualifications of knowledge and teaching ability. The report further stated that there was evidence of a general agreement as to the necessity for some scheme for the registration of teachers.

The opportunity came in 1899, when the Board of Education Act authorized the formation of a Consultative Committee with certain powers, among which was that of framing and keeping a register of teachers. In 1900, the Committee was formed, and two years later a Registration Council was set up, consisting of twelve members, of whom six were nominated by the President of the Board and the remainder by various associations of teachers, including the National Union of Teachers. The Council thus included representatives of the two main types of teaching work, but after a few years it became clear that the scheme was unworkable. Opposition arose when the register was arranged in two columns, one for secondary and the other for elementary school teachers. The proceedings of the Council were subject to the close scrutiny of the Board of Education, and little could be attempted without its approval. In the Education Bill of 1906, it was proposed to abandon the scheme; but the teachers pointed out that, although one scheme had failed, it was still possible and desirable that a satisfactory register should be formed.

Accordingly, in the Education Act of 1907, a clause was inserted authorizing the creation of a Registration Council representative of the teaching profession. To this Council was to be assigned "the duty of forming and keeping a register of such teachers as satisfy the conditions of registration established by the Council for the time being and who apply to be registered." It was further provided that "the register shall contain the names and addresses of all registered teachers in alphabetical order in one column, together with the date of their registration, registration number, and such

further statement as regards their attainments, training, and experience, as the Council may from time to time determine that it is desirable to set forth.'

**Present Council.** The Act of 1907 thus left the way open for a new scheme and, after some years of registration, an Order in Council was issued on the 29th February, 1912, establishing a new Registration Council. In an official memorandum [Cd. 5726], Sir Robert Morant reviewed the entire problem and emphasized the importance of a unified teaching profession. This conception led to a new view of the Council and its constitution. Since it was to represent the whole teaching profession, it must include university, secondary school, elementary school, and specialist teachers. There are eleven universities in England and Wales. One representative is assigned to each, and the various associations of secondary, elementary, and specialist teachers appoint eleven representatives in each branch. The Council thus numbers forty-four, each member being a teacher. The chairman must be chosen from outside their number, and the Chairman of the first Council was the Right Hon. Arthur H. Dyke Acland. Each Council is elected for triennial periods, and is aided by the committees representative of various forms of technological and specialist teaching, appointed by teachers in the several branches concerned.

**Conditions of Registration.** The first duty of the Council was to devise satisfactory conditions of registration. After some months spent in a thorough exploration of the problem, the conditions were issued in 1913. They provide for the registration of teachers who are shown to have reached a standard of knowledge appropriate to their branch of work, and are able to produce evidence that they have taken a course of training in teaching covering at least one academic year, and accompanied by practice in teaching under supervision. In addition, applicants are required to show that they have taught under satisfactory conditions for at least three years as whole-time teachers, or five years as part-time teachers. The minimum age for full registration is 25, but teachers who satisfy the conditions in all respects save that of age may be accepted for temporary registration. In all cases, the fee for registration is a single and final payment of one guinea. There is no annual subscription.

**Temporary Arrangements.** On these terms, teachers of every type may gain admission to the professional register. It was evident that regard must be shown to the teachers then at work who might not be able to satisfy all the requirements. Therefore it was provided that up to the end of 1920, teachers of five years' standing might be accepted for registration on producing satisfactory evidence of character and experience. The only exception was that teachers in public elementary schools must hold the Government certificate.

The scheme thus briefly described commands the support of all teachers. The first Official List of Registered Teachers contains 17,500 names, including heads of universities, the masters of the leading public schools, teachers in elementary schools, and a large number of specialist teachers. The Teachers' Registration Council is frequently consulted by the Board of Education, and is the most thoroughly representative body of teachers in the country. Its influence on educational developments, and especially on the status of teaching work, will gradually increase. The advantage of a unified teaching profession lies in the possibility of pro-

tecting qualified teachers and the public from the unqualified teacher. This is the chief duty of the Council, but it is evident that the task involves the consideration of many questions which are of far-reaching importance, such as examinations for teachers, training in teaching, and the position of teachers as professional men and women. F. R.

#### References—

- "Teachers' Registration Council Order in Council" (29th Feb., 1912). [White Paper, Cd. 5726.]
- "Regulations of the Teachers' Registration Council."

#### TEACHERS' ROOMS.—(See BUILDINGS, SCHOOL.)

**TEACHERS, THE TRAINING OF.**—Those who are engaged in the work of training teachers will be the first to admit the possibility of improvement in the methods usually employed, and the likelihood of changes in the not distant future. The training colleges are doing valuable work, but they are too often hampered by obsolete traditions, or by academic theories which will not stand the test of actual school experience. We need a more comprehensive conception of the aims to be attained by training in order that schools and training colleges may combine to carry on the work on lines which they can wholeheartedly approve. It is the purpose of this article to indicate one direction in which progress towards such a conception appears to be taking place. The discussion will be limited to the training of school teachers in the theory and practice of their profession. How to ensure that intending teachers shall have obtained an adequate general education and a satisfactory knowledge of the subjects they will teach is a question of great importance, but it cannot be considered here. It will be assumed that the professional training is acquired by means of a course of study and school practice extending over a period definitely devoted to the purpose.

The benefits which a student may be expected to derive from his training are variously described. It is said, for instance, that he will acquire an expert's interest in his work, greater skill in teaching, and a wider outlook upon educational problems, such as those connected with the social function of the school. Or it is claimed that he will become a more efficient member of the organized body of professional teachers, or be better equipped for educational research. All these results are valuable, but they are the outward signs of the achievement of a more fundamental aim.

**Training Primarily as a Man and Secondarily as a Teacher.** By common consent a teacher's efficiency depends more upon his character and personality than upon his purely professional accomplishments. Technical skill is undoubtedly essential, but it is primarily a means and not an end. Education is a process of intercourse between human beings, and the teacher must, before all things, possess the personal qualities which this intercourse demands. The fundamental purpose of training should, therefore, be the development of such qualities, with special reference to their exercise in a specific field. It is by its success in grappling with this difficult task that a course of training must be judged.

It may be objected that the task is an impossible one; that true teachers are born not made—at any rate not made by a course of training. The objection is well founded if the students are not carefully selected; for, unless they possess the necessary qualities, at any rate in an embryonic



form, they will not develop them while being trained. But, given the right students, experience shows that the problem is not insoluble. Some training colleges are very successful in stimulating their students consciously to cultivate the qualities of which they feel the need, and even more may be accomplished by methods which are less direct. The influence exerted by the common life of the school or the training college in which the student works may help to produce the desired result. Of equal moment is the spirit in which the course of training is conducted, and the lines upon which the student's theoretical studies and school practice are arranged. The spirit of the training must be broadly human. The student must be considered primarily as a man, and only secondarily as a "teacher." His interest in education will be the focus of his whole mental life. He will be attracted by the technical aspect of his work mainly because technical efficiency is an essential condition of success in achieving the wider aims of which he feels the real importance.

In accordance with this general point of view, the student's theoretical studies will lead him to look upon education as one of the fundamental processes of individual and social life.

For example, when discussing the art of teaching, we shall call his attention not only to details of specialized technique, but also to the principles involved in one great field of human effort. In the history of education we shall trace the growth of human thought and civilization from a specific point of view, as well as the development of educational theory and practice in the narrower sense. Hence the student will concentrate his attention upon great movements and outstanding personalities, and upon the development of the schools as organs of the common life, rather than upon details of purely scientific or antiquarian interest. Again, psychology will be studied chiefly in order that the teacher may gain a more sympathetic insight into his boys' mental life. Probably the genetic point of view will prove most helpful, but in any case the treatment will be functional and concrete, interpreting the thoughts and feelings of the actual living boy, rather than analysing abstract mental processes. It is true that some discussion of these processes will be needed as a foundation for intelligent technique, but it will be confined to points of direct practical importance.

Such a method of treatment will not preclude a more intensive study of any subject in which an individual student feels a special interest. It is, indeed, desirable that greater latitude should be allowed to individual choice than is at present usual. The indications given will, however, illustrate the general lines on which the theoretical instruction should proceed.

**Training in Practical Work.** The same principle applies with even greater force to the development of the student's interest in his practical work. He must be led to think of his boys (conventional "boys" and "masters" may be of either sex) in the first instance, indeed, as members of his school and class, but he will think of them also as members of families, as embryo citizens destined for various callings (some training colleges are very successful in interesting their students in the social conditions of their future pupils), and above all as human beings. The work of instruction will thus assume a new significance. The master will regard a lesson as a period of intercourse and

co-operation between himself and his boys, rather than of direction or control. He will need all the resources of his art and much practical experience before he can even approximately realize his ideal. But his technical skill will be acquired and used in order to establish simple human relations with his boys, and to enable him to play his proper part in the common life, not in order to introduce an artificial classroom atmosphere. Further, it is clear that a teacher who regards his work from this point of view will be keenly interested in the school's common life and in the boys' out-of-school activities. But his various interests in what they do will be expressions of his central interest in them as individual persons.

To give the practical training needed by the teacher for work like this is a far more difficult and comprehensive task than that of helping him to become a good disciplinarian, or to conduct his lessons on the lines laid down in books on method. An adequate discussion of the problem is obviously impossible, but a few points may be noted.

**School Practice.** To begin with, an important part of the training must be obtained by actual experience in some school. The student must be given opportunities of acquainting himself with the various activities of some school staff, and of observing the methods adopted both in giving instruction and in the organization of school life. He should, if possible, be brought into personal contact with some inspiring teacher. He will thus be put in the way of acquiring some of the traditional skill in the management of boys which is the teacher's heritage. Unfortunately in too many schools the traditional skill is that of the "teacher" rather than of the man. But he will learn more by doing than by observing. He must, as far as possible, share in the work of the school staff, not merely giving instruction but playing a part in the school's corporate life. On this account it is held by some authorities that the student should receive the whole of his training in some selected school, the necessary instruction in educational theory being given by some competent member of the school staff. Under exceptionally favourable circumstances this course has produced excellent results, but it is not easy to find schools equal to the task. It must, therefore, be assumed that, under present conditions, most students will become members of some training college, the staff of which will provide for the study of educational theory and supervise their whole course of training. Their practical experience will be gained in selected schools, which should be closely associated with the college in the arrangements made for the students' training. In the writer's opinion, the unity of the course of training will be best maintained if the schools and college become, for purposes of training, departments of a single institution.

Under these conditions the students' practical experience must be obtained by periods of continuous school practice. It is desirable that some practice should be obtained before they enter the training college, but in any case both theoretical and practical training should be included in their college course. With regard to their practice in the class-room, one suggestion only can be offered here. If a lesson is regarded as a process of intercourse and co-operation between the teacher and his boys, it seems undesirable for the student to attempt to forecast in detail the course which



the lesson will take. It is, of course, essential that he should be master of his subject matter and have a clear conception of the aim to be attained and the general procedure to be followed, but the system of writing elaborate notes of a lesson to be given appears to be a relic of an antiquated point of view. The arrangement of all lessons according to the Herbartian or other scheme is also to be deprecated. When the student is teaching, his mental attitude should be responsive and creative, rather than reproductive.

**The Teacher as Member of a Social Whole.** The preceding discussion may have suggested that the teacher can carry on his work as an independent individual. Such, however, is not the case. He is a teacher because he is a member of a school staff, a member of the community, and a representative of his profession, and in virtue of his participation in the ideal interests of mankind. He is a man, and can be a teacher only because he thus shares in various ways a life which is wider than his own. This fact has an important bearing upon the question of training. It is, for instance, dangerously easy when training teachers to exaggerate the importance of the part they play as individuals both in the class-room and outside. The influence of a good teacher is not likely to be over-estimated, but he is a good teacher in so far as he concentrates in his own person the educational forces of the school. His authority is exercised not in his own name but because he represents the common order. He teaches, not his individual views as such, but his conception of the truth. Order and truth alike must be embodied in a person, and must thus take a concrete shape, but this shape must be determined as little as possible by individual whims. The teacher's character will have the freest play when it is most completely the organ of universal truth and law. If this principle is accepted it will strongly influence the spirit in which the teacher is trained for his profession, as well as some of the detailed methods he is encouraged to adopt.

The point of view which has been outlined makes no claim either to completeness or finality. The problem of how best to train our teachers is still far from its solution. But of its importance there can be no question. Few reforms, indeed, would exercise greater influence upon the future of English education than the organization of a thoroughly effective system of training teachers.

H. P. S.

#### TEACHERS' TRAINING AND REGISTRATION SOCIETY, THE.—(See GREY, MARIA G.)

**TEACHERS, TYPES OF.**—The purpose of the articles given in a list below is to present a general view of the work of education in the British Empire, so that the reader may appreciate what the Empire is doing as an employer of labour. It will be impossible to discuss the whole problem, because much of the labour is contributed by voluntary workers, animated by earnest desire for the welfare of children and learners generally.

The number of types of school, which corresponds with yearly increasing accuracy to the number of groups into which learners can be divided according to age, ability, and purpose, will necessarily remain less than the number of types of teachers; for a school is a complex organism with many functions, and deals not only with its pupils, but very often with the parents of pupils, and with local and

national administrative bodies. The number of these functions that an individual teacher can discharge is necessarily limited, especially in large schools and in universities.

The variety of "subjects" taught causes a further division of teachers. In the last few years a tendency towards "specialization" has developed in elementary schools, on the lines of the specialization long established in secondary schools and universities. Up to the present time this development has caused no increase in the number of types of teacher; indeed, so far as this aspect of the movement is concerned, it is more than counter-balanced by a tendency to withdraw certain "subjects" from the domain of the specialist, and to expect every teacher to have a good working acquaintance with them. Manual instruction is a case in point. For many years it was a thing apart. Manual training centres were established, with a special group of teachers, to give the necessary teaching. During the last eight or nine years the question has often been discussed: "Is manual training a branch of the curriculum or a method of teaching?" (See *HANDWORK AS AN EDUCATIONAL SUBJECT*.)

Further differentiations are made by reason of the fact that teachers need training, that one stage in the training is marked off from other stages by examinations and by salary scales. Various methods of training, and various degrees of qualification, produce yet more groups of teachers, including, in English public elementary schools, bursars, student teachers, students in training, pupil teachers, uncertificated teachers, certificated teachers.

Conditions of appointment, apart from such differences in qualification as have already been indicated, are responsible for the formation of additional groups, such as unattached teachers and supply teachers; while, in universities, teachers with similar functions bear different titles according to the funds from which they are paid.

**The Uses and Disadvantages of Diversity.** It is, therefore, not a matter for surprise that the British Empire contains a considerable number of groups of teachers. In England alone there are more than thirty groups, not counting the different specialists in secondary schools as composing separate groups. Of course, any particular teacher may be a member of more than one group (*e.g.* a certificated teacher in a public elementary school may also be a teacher in an evening school) but in order to achieve membership of an additional group, it is necessary either to have additional qualifications or to discharge different functions from those for which the teacher is fitted by his original qualifications.

A strictly logical and consecutive account of the various groups is impossible, because of the variety of modes of classification. It is not even possible to classify schools (if we may use this term to include all institutions organized for the purpose of teaching) on any strictly logical basis, because in England to a great extent, and in other parts of the Empire, too, we have not so much a system of education as a fortuitous and almost casual collection of educational efforts. It will, however, simplify our task if we may group schools, colleges, and universities into three groups, according to the roughly estimated leaving age of the scholars. We shall then have: (1) elementary schools, whose scholars leave at the age of 14 years; (2) secondary schools, whose scholars leave at the age of 16 to

19 years; (3) universities, whose scholars leave at the age of 22 years and upwards.

The separate articles contain only such historical references as may be necessary to make the accounts reasonably complete. Certain types of teacher now extinct (*e.g.* monitor and "Article 68") are mentioned in their proper places, and in other ways we shall utilize historical records, but in the main the articles aim at presenting a simple account of the types of teacher now at work.

A survey of all the articles mentioned will indicate how general is the recognition of the fact that the essential unity of aim in the work can be achieved only by a suitable diversity of means. Pupils differ in needs and in abilities, but all alike are receiving an education which, while recognizing those differences, recognizes also the importance to the human race of developing every human being to the fullest degree compatible with the due discharge of his social functions.

Though, at times, it has seemed as if very imperfect educators have been permitted to work, it is equally clear that throughout the Empire governments are eager to secure the best available teachers.

A. C. C.

(See AFFLICTED CHILDREN, TEACHERS OF; ARMY TEACHERS; ART SCHOOL, TEACHER IN AN; ASSISTANT TEACHER (CERTIFICATED); AUSTRALIA, TEACHERS IN; BURSAR; CANADA, TEACHERS IN; CERTIFICATED TEACHER; CONTINUATION SCHOOLS, TEACHERS IN; DOMESTIC SUBJECTS, TEACHER OF; HEAD TEACHER; INDIA, TEACHERS IN; INFANTS, THE TEACHER OF; IRELAND, TEACHERS IN; LECTURERS (UNIVERSITY); LECTURERS (TRAINING COLLEGE); MANUAL TRAINING INSTRUCTOR; MONITOR; NAVAL INSTRUCTOR; NAVAL SCHOOLMASTER; NEW ZEALAND, TEACHERS IN; PROFESSOR; READER; RURAL SCHOOL, TEACHER IN A; SCOTLAND, TEACHERS IN; SOUTH AFRICA, TEACHERS IN; TEACHER, EX-PUPIL; TEACHER, PERIPATETIC; TEACHER, PUPIL; TEACHER, STUDENT; TEACHER, SUPPLEMENTARY; TEACHER, SUPPLY; TEACHER, UNATTACHED; TEACHER, UNCERTIFICATED; TEACHERS IN ELEMENTARY SCHOOLS; TEACHERS IN SECONDARY SCHOOLS; TEACHERS IN UNIVERSITIES; TECHNICAL COLLEGE OR SCHOOL, TEACHER IN A; TRAINING COLLEGE STUDENT; TUTOR; UNIVERSITY TEACHERS AND DEMONSTRATORS.)

**TEACHING AS A PROFESSION.**—It is related that a lady was once discussing with her afternoon callers the demise of the bishop, and observed: "Well, this one was a schoolmaster, and his predecessor was a schoolmaster; I do hope that the one they appoint now will be a gentleman." The story but illustrates what countless references to literature would confirm, that the professional status of the schoolmaster is uncertain. This has been due to a variety of causes. For long the schools were a jumping-off ground for the younger clerics, who taught, but did not continue teaching; for long they were a promising field for the private adventurer, and from Dickens to H. G. Wells his repute is unsavoury. Failures from other professions drifted to the classroom. Salaries were bad, security of tenure did not exist, training there was none; and when elementary education came into being, it developed in complete isolation from the secondary system. When one thinks of the close and homogeneous texture of the great established professions of the Church, the Law, and Medicine, and of the great prizes of position, influence, and emolument which they offered to the successful,

and compare them with the ill-paid, often ill-qualified, transitory, and wholly unorganized individuals who manned the schools in the latter half of the nineteenth century, one cannot but feel that the world was right in denying to the schoolmaster, as such, the assured position of the solicitor or the doctor.

Since those days there has been advance. There are now fewer birds of passage among teachers; elementary education is closely organized; and secondary teachers are moving much less sluggishly than at first in the same direction. All grades of teachers mix together more, and understand each other better. Salaries have certainly improved; the foundations of training have been laid, and a second attempt at the formation of a Teachers' Register has been successful. But there is still much to be done.

In the first place, the qualifications demanded by the Register are not in themselves enough to guarantee that the private school will necessarily be efficient. All schools must be subject to inspection. There is no hardship involved in the demand: for all those who are carrying out the duties for which they induce the parents to pay, have nothing to fear. Schoolmasters, if they are to be a profession, must be enabled to eliminate the unqualified adventurer. It is assumed, of course, that the academic qualifications demanded will rise, and that a system of training which will command general confidence will be evolved. We shall then have gained the first requisites: that we shall have no practitioners who are unqualified, none untrained, and none unregistered.

**Suggestions for the Improvement of Professional Status.** But if the right men are to be found to fill the ranks of this profession, and to undergo the long and expensive course of preparation, teachers' salaries must be improved, their tenure of office rendered more secure, and their future made more certain. There must be more liberal salary-scales, and there must be more numerous and better organized avenues to promotion. The laws of mathematics forbid more than a small percentage to hope for head masterships, and to cut down the emoluments of the few prizes which teaching has to offer is, in itself, doubtful policy and does not in any case touch the general problem. But it is reasonable to look forward to an increase in the number of special departmental posts in schools, carrying higher salaries, and filled by experienced men and women. And among these, if training is to be thoroughly practical, one might in the future expect to find in every large school a teacher of Method under whom every beginner would serve a part of his novitiate. The inspectorate also should be freely recruited from those who have proved their worth in the field. In such ways there would be a chance of advancement for all who worked and succeeded, and, what is perhaps as important for those of mature years, a sense of others' recognition of that advancement.

If there is to be a real sense of unity throughout the whole profession, there must be far more opportunity of interchange between the elementary and secondary branches. This involves smaller classes, better conditions, and more possibility of individual initiative than the elementary schools have yet known. Just as certainly it involves a greater expenditure of public money. Whether the nation will eventually have the courage and the wisdom to meet that particular bill is doubtful, but this

does not alter the facts that, until it does, it will largely waste the money which it does spend, and that the teaching profession will be divided into two mutually exclusive orders with limited opportunities of knowing and understanding each other.

These are external and material conditions, but the teacher's profession will always depend upon that which is inner and spiritual. It will never be a career for the man who is anxious to make his fortune; it will always demand of its votaries some sense of self-dedication and willingness to serve for comparatively humble reward. The work will always remain its own best recompense, and, unless a man can feel this, he cannot be to the full a true schoolmaster. Let us hope that the profession which will come into existence will barter away none of its independence, and will maintain for itself liberty of thought and word and devotion to truth; and, while maintaining these for itself, will equally require from the taught, honesty, truthfulness, and willingness to serve. How great a power for good and for evil the profession, if thoroughly organized, can be, the history of nations shows; but if we, as a people, can create a profession competent without the sacrifice of freedom and honesty, and inspired by the ideals of truth and service, that profession may build a school of citizenship such as the world has seldom, if ever, seen.

C. NORWOOD.

**TEARING, PAPER.**—(See PAPER TEARING, CUTTING, FOLDING, AND MODELLING, HOW TO TEACH.)

**TECHNICAL CLASSES, DAY.**—The provision of technical training for those preparing for industrial employment was initiated in the form of evening and part-time courses of instruction, from which full-time day classes have gradually developed during the past twenty years, and especially during the latter half of this period.

The aim of the curricula now provided is to train boys and girls for their future vocational work as workmen, foremen, and managers, and at the same time to continue their general education. This training varies considerably, both in regard to the scope of the work and the standard in view, so that several grades of technical instruction are to be included under the heading of "Day Technical Classes." These may be conveniently grouped as: (i) Junior technical courses; (ii) intermediate technical courses; (iii) advanced and post-graduate technical courses. The lines of demarcation between these three grades are not very definite, especially in this country; but the grouping is helpful in considering the character and aims of the instruction provided.

**Junior Technical Courses.** These courses are provided in schools usually known as "Trade Schools" (*q.v.*) or "Trade Preparatory Schools." (See TRADE SCHOOLS FOR BOYS AND TRADE SCHOOLS FOR GIRLS.) Trade preparatory schools are less specialized than trade schools: the training is more general and is applicable to a group of industries rather than to a specific trade. Owing to the decay of apprenticeship and the marked subdivision of labour in most industries, the work of the trade schools has become especially important as a means of providing a satisfactory training for skilled workers.

Junior technical courses of this character are designed to meet the requirements of boys and girls

from 14 to 17, after the completion of their elementary school education. The trade preparatory schools are usually for scholars from 13–15. The curriculum extends over two or three years; in some cases an additional fourth year of study is provided. The following are among the many trades for which day technical courses are provided: Engineering and allied trades; building; furniture, cabinet-making, and woodwork; photo-engraving and photo-process work; artistic crafts; printing and book-production; carriage and motor-body building; photography; tailoring; bakery and confectionery; dressmaking; millinery; cookery; laundry-work; upholstery; waistcoat-making; and domestic service.

In these courses, about two-thirds of the total hours of instruction are usually devoted to trade-work; and the remaining time to general subjects, such as mathematics, drawing, science, and English.

Entrance scholarships for junior technical courses, accompanied by maintenance grants, are, in many instances, provided by the local education authorities.

Part-time day technical classes have been established in a number of centres for apprentices, who are given facilities by their employers to attend on a certain number of mornings or afternoons per week. A typical school of this character is that arranged for the Arsenal apprentices at the Woolwich Polytechnic School of Engineering.

The organization of junior technical courses of instruction has been developed far more completely both in Germany and in France than in this country. (See TRADE SCHOOLS IN MUNICH.) Full-time courses are provided in many schools; and, in addition, part-time day courses, extending over from six to fifteen hours per week, attendance at which is compulsory for all boys between 14 and 18, are arranged in all the larger cities. In Paris there are 15 full-time professional day schools—7 for boys and 8 for girls—instruction in which is entirely free for scholars resident in the city.

**Intermediate Technical Courses.** The aim of technical courses of an intermediate standard is to train boys of 16 and upwards, who have had a more advanced general education than the scholars entering the junior courses, for their vocational work. Full-time courses of this character have not, as yet, been as fully developed in this country as in France, Germany, and the United States. This instruction is provided at technical and polytechnic institutes. It is confined chiefly to engineering subjects and some branches of applied chemistry, and serves as a training for those who are to become responsible assistants and managers in works.

**Advanced and Post-graduate Technical Courses.** These courses comprise those given at the higher technical institutions and universities for men who are to become professional and technical experts in industry. They include a wide variety of technical subjects, instruction in which is based on a thorough scientific training, and also courses of a post-graduate character, for men who have had industrial experience. Very important developments of this grade of technical instruction are now in progress, which should do much to further the association of science and industry and to promote industrial advancement.

C. A. K.

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**TECHNICAL COLLEGE OR SCHOOL, TEACHER**

**IN A.**—Students in technical colleges and commercial schools have a definite vocation before them, demanding both knowledge and skill. Teachers in technical colleges must therefore be able both to give the necessary vocational training, and to conduct such experimental research as will tend to secure the respect of employers in the trade concerned. This is true of training colleges, commercial schools, and of schools of art, but it is of immense importance in technical colleges.

It is also beneficial to the students if the character of the teacher enables them to be prepared not only for their vocation but also for complete living. In industrial centres, where alone technical schools can hope to flourish, the struggle for existence is so keen that this aspect of their educational work tends to be neglected, but this statement casts no slur upon teachers in English technical schools, who are as alive to the difficulty as any onlooker.

Salaries and conditions of service are similar to those in secondary schools, except that there is a great deal of evening teaching on account of the needs of ambitious workmen in the towns who are free only during the evening.

**Teacher in a Commercial School.** Many commercial schools are private ventures, run for the profit of the promoters. There are, however, a few which may be attended by pupils who have completed a secondary school course. In these schools the problem which faces the local education authority and the teachers is that mentioned in technical schools; *viz.*, how to introduce into the programme something more than vocational training. There is no doubt that the solution of this question will benefit hundreds of girls and young men who, by confining their work to shorthand, typewriting and perhaps book-keeping, and avoiding the humanizing elements of education, at present suffer irreparable loss.

So far as salaries and conditions of service are concerned, teachers in commercial schools under public control are in a position precisely similar to that of teachers in technical schools and colleges.

A. C. C.

**TECHNICAL COLLEGES.**—These are teaching institutions which, with a few exceptions, have come into existence during the last thirty years. They provide a form of scientific training specially adapted to the needs of some particular industry, and are attended by students who contemplate making that industry their life work. Some of these colleges form a part of, or work in close connection with, a university. Others are independent institutions whose academic rank is quite equal to that of a university college. The work they do is a natural extension of that of any university, but their existence does not render unnecessary any of the work hitherto done by universities. On the contrary, the call for instruction in pure science becomes greater with the spread of scientific knowledge among those engaged in industries.

Education, strictly speaking, is concerned merely with mind-training. It has no reference to the usefulness of the facts and principles dealt with in the course of instruction. Hence, in the pure science courses of the universities, we find that the laboratory apparatus has been specially designed with the sole object of illustrating in the clearest way the

principles studied. Commercial appliances, such as the technical student ultimately has to deal with in practice, can also be used and tested in order to illustrate scientific theories; and in technical colleges such appliances are used, in preference, for teaching the students. They are not nearly so convenient for this purpose as specially designed apparatus, since their action is more complicated, and involves many other matters than those immediately under investigation. Yet students in most cases are much more interested in studying the working of an actual machine, in the course of which they can be made to see that it illustrates a scientific principle, than they are in studying the principle alone without reference to any of its applications. The same consideration holds good of the lecture work and exercise work.

**The Relation of Pure Science and Technical Work.**

There can be no better training for a scientific industry than a thorough course in pure science, assuming that it is attended by the right students, and that the course is suitably followed up by training in applying the principles to the working of actual commercial apparatus. But few of those who go through such a course afterwards enter the industry, while the parents of most of those who ultimately join the industry are unwilling to send their sons to a college for such pure science work. The need for technical training has become more and more evident during recent years. Yet the success of technical colleges has not diminished, but has rather increased, the demand for pure science instruction. The technical courses have attracted students, the majority of whom would never have attended general science courses; while the development of scientific industries has made evident to a larger public the need and usefulness of research in pure science, and of that thorough scientific training provided by courses of the old type. The truth of this can be illustrated in connection with wireless telegraphy, in which the early researches were quite unknown to the public, and were undertaken with the sole object of experimentally verifying Maxwell's electrical theory, already more than twenty years old. When this was satisfactorily accomplished, scientific interest in the matter almost ceased until Marconi, ten years later, took it up from a utilitarian point of view, and succeeded in evolving a successful new form of telegraphy. The importance of this success was commercial rather than scientific, but indirectly it has been of much value scientifically, since it has provided funds for a vast amount of experimental work, undertaken, it is true, with a directly useful object, but nevertheless revealing new problems of great scientific interest, and demonstrating the need for men highly trained in science.

From the national point of view, it is a matter of indifference whether scientific and technical courses are provided in the same or in separate institutions. Both courses are needed, and they are mutually helpful. Technical courses are required if the majority of those entering scientific industries are to be suitably trained. Science courses are needed if the necessary pioneer work is to be done. Whether these courses are, or are not, carried out side by side in one building, it is necessary for most of the classes to be separate. It is hopeless to try to make one course of study suit both objects in view.

**Earlier Technical Courses.** These were not developed to provide against the effects of foreign

competition. One of the first was that provided in the Mechanical Engineering Department of University College, London, under Professor Kennedy. This was established in the interests of the scientific development of engineering, an industry in which this country has always had, and still retains, a distinctly leading position. But of late years it has become more and more apparent that, if this country is to maintain its proper place in scientific industries, the majority of the men engaged in the work must undergo a far better scientific training than hitherto. The Guilds of London were the first to recognize this need, and to start a public movement in favour of providing suitable courses of training. From 1880 onwards they liberally supported the cause of technical education. They helped to finance evening classes, and introduced a new examination system. In particular, they established and maintained two technical colleges in London, one in Finsbury and the other in South Kensington. These colleges were not associated with any university. The professors were allowed complete freedom to organize their courses independently of any system of external examinations. The Finsbury College provided a course which at first lasted for only two years, and was open to students younger than the ordinary entrance age of a university college. The South Kensington College provided a three-year course for older students. The length of the course has been since extended at each college; and the latter, now known as the City Guilds Engineering College, has been made a part of the Imperial College, South Kensington.

**Modern Technical Courses.** Numerous technical courses have been established in the country, but they all belong to one or other of the types represented by the Finsbury and Kensington Colleges. Those of the Finsbury type are to be found in the technical schools (*q.v.*), but not in the universities. Those of the Kensington type form departments in the universities, and also in the larger technical schools. There is hardly a university now without one or more technical departments, in addition to the corresponding ones in pure science, and quite distinct from these as regards the staff, the students, and the examination system. Most of the existing technical courses belong to one of two groups associated respectively with the engineering and chemical industries. Included in the former are courses in mechanical, civil, electrical, and mining engineering; while the latter includes courses in metallurgy, in bleaching and dyeing, and in chemical manufacture. The universities and technical institutions of this country are, on the whole, well provided with technical departments catering for engineering industries; though on the Continent, and especially in Germany, engineering instruction is much more specialized, and it is common to find established in the same technical university several separate professorships dealing with branches of engineering which, in English colleges, are merged into a single department. It is in the provision for teaching chemical technology that this country is most seriously deficient.

The conditions under which the work of a technical course is carried out differ in several respects from those of the corresponding course in pure science. In the first place, the teachers are men who have had not only a sound training in science, but also some practical experience in the industry in whose interests the department is

established. The length of the course is the same as that of an ordinary degree course in pure science. To obtain his degree, the science student has to acquire a competent knowledge of more than one branch of pure science. The technical student who has to be trained in scientific principles, and also in their application to many professional matters, has not so much time to devote to theory, and hence cannot be expected to progress so far in his scientific studies. The work of a technical course calls for continuous effort, and the progress of the student is tested not so much by terminal examinations as by the record of work done. W. E. S.

#### TECHNICAL EDUCATION, THE AIMS OF.—

The three decades that have passed since the question of Technical Education was first recognized as one of extreme national importance have not modified, to any great extent, the views which were then held as to its aims and objects. Changes of a very drastic character have been made in the organization of our general scheme of education and in the methods of instruction adopted in all grades of schools, and these changes have been very largely due to the agitation that marked the years 1875-1885 in favour of bringing the education provided in our schools into some direct relation with the industrial and commercial occupations of the people. It was realized that whilst the education obtainable in our universities and in some of our secondary schools served as a fitting preparation for such professional callings as the law, theology and medicine, or for literary pursuits, it had little or no reference to the newer avenues of employment, in which an increasing number of the citizens were engaged. It was also recognized that the changes in the methods of manufacture, due to the advances of science, had rendered necessary a new and specialized kind of training for those who were to be enrolled in our industrial army. It was, and is, the aim of Technical Education to prepare our youth for the different varieties and grades of work in which all ranks of that army are employed.

The recognition of the principle that the teaching in our schools should be adapted to the newer industrial and commercial pursuits, and less exclusively to the older professions, gave a strong impulse to the reconsideration of the instruments and methods of instruction by means of which these wider aims of education might be attained.

The complexity of the problem, and the difficulties that were experienced in constructing new foundations, on which our educational structure should be based, explain the comparatively slow progress that has been made in developing in this country a complete and well organized system of technical instruction. Many old prejudices had to be uprooted. The Government and the ruling classes had to be brought to realize that education, even in its higher grades, could no longer be regarded as the luxury of the rich, but must be so organized as to be brought within reach of all sections of the people. The remarkable changes in the machinery of production and equally in the operations of commerce, due largely to the progress of science and to the application of new inventions and discoveries, had created a demand for highly skilled artisans and for educated workmen of all classes, capable of utilizing these new appliances in the several branches of industry in which they

were engaged. Schemes of technical teaching, adapted to the requirements of different grades of workers, and to their several trades and occupations, had to be gradually thought out, and the framers of these schemes soon discovered that our system of elementary and higher education must be re-considered with a view to those requirements, and must serve as a suitable preparation for specialized subsequent instruction. The demand for technical education was two-fold. It required that all persons engaged in productive industry, whether as craftsmen, agriculturists or employees in factories, should acquire manipulative, skill, and, at the same time, some knowledge of the scientific principles underlying the processes and details of their work; it required, also, that of those employed some at least should be so trained as to be capable of undertaking research work and applying to the processes of manufacture and to the machinery of production recent scientific discoveries. To meet these requirements, the teaching in our schools had to be gradually but considerably modified. Practical work in the laboratory and shop took the place, to some extent, of class-instruction and book-learning, and the curriculum in every grade of school was so arranged as to have a direct or indirect vocational bias. Schools have already been established in which different branches of trade are taught. They are in some respects similar to the apprenticeship schools of France. In our elementary schools, the training of the hand by exercises in the use of tools appropriate to the manipulation of different materials, by constructive work, and by the making of simple models, apparatus and appliances to illustrate the ordinary school lessons, forms part of the instruction, and will, in the near future, find a still more prominent place in the curriculum.

**Secondary Schools.** The extent to which vocational work will affect the teaching in our secondary schools must depend very much on the leaving age of the pupils. It is in the secondary branch of education that the greatest variety exists. Our secondary schools serve a double purpose. They occupy a position intermediate between the elementary school and the university, preparing some of their pupils for the higher education, and serving at the same time as a finishing school for the majority, who on leaving enter on a professional or commercial career. The types and grades of these schools differ to meet various needs, and it is this diversity in their character that renders the organization of secondary education so difficult a problem. But whether the curriculum is framed with a view to the leaving age of 17 to 19, or earlier, it must be arranged with some regard to the future occupation of the pupils. What is generally understood as technical education—the specialized training for a particular career—should be a more prominent feature of the course of study in these schools than in schools of a lower grade. Nevertheless, it affects the teaching in many ways; in the greater attention now given to the practical study of science; in the growing tendency to provide workshop instruction or its rural equivalent; and in the obligatory lessons in drawing. These are among the essential instruments of technical education, whether as a preparation for industrial and commercial work, or for the more advanced and specialized courses of study in the Technological Department of a university.

**Universities.** It is, however, in the university or final school that the most significant results of technical instruction and its highest aims are realized.

Here it is that science gives its most efficient aid to industry. Here it is that the engineer and the manager of works receive their special training, and here it is, in their laboratories and workshops, that the chemist, the physicist, and other scientific experts patiently pursue their researches, the results of which, in so far as they are applicable, are utilized in developing our industries and in improving the methods of production.

In order that technical instruction in school and university may achieve its aims, teacher and professor must be conversant with trade requirements. A close connection must be established between industry, in its several branches, and science in its wide and varied ramifications. Mere academic teaching cannot secure the results at which technical education aims. The shop and the school must meet. Not only teachers, but equally those who are charged with the administration of this special branch of education should have some trade experience, or at least some general knowledge of the conditions of manufacturing and commercial industry. Abroad, this essential principle is commonly recognized, with the result that the teaching of the school is more directly applicable to the practice of the trade than in schools at home of the same type and grade. In France and Germany, technical schools are placed under the control of the Ministry of Commerce. In Ireland, they are, or were, administered by a separate department, that of agriculture and technical instruction, whereas in England all technical and trade schools, with the exception of those concerned with agriculture, are under the direction of the Board of Education, the functions of which are very wide, covering elementary, secondary, and to some extent university education. There can be little doubt that our technical instruction might be more intimately linked up with industrial needs, if administered by the Board of Trade acting in close association with the Central Education Authority.

**The Co-operation of Trade Experts.** Much has been already effected by utilizing the services of the General Advisory Committee of trade experts which have been established in connection with some of our technical schools and local educational authorities. The knowledge of commercial requirements which the members of these committees possess has proved most valuable, and this influence has been stimulating; but their functions are only advisory. Better results would undoubtedly be obtained by the active co-operation of the two departments of State concerned respectively with trade and education. There is a tendency, which cannot be ignored, for the schools to lag behind the advances of science, and to get out of touch with the changing details of industrial operations; and to the absence of any sufficiently close connection between teachers and traders is partly due the distrust of employers, so often felt if not openly expressed, as to the advantages of technical instruction in the training of managers and skilled artisans. In the higher grades of technical education, the failure of manufacturers and the heads of great manufacturing firms to recognize the value of the training provided in our universities and technical institutes



has been more marked, and is attended with more serious consequences. It has been to some extent, but not entirely, the cause and explanation of our dependence on foreign countries for the supply of materials and manufactured products, essential to the production of commodities, which are urgently needed in times of peace and still more so in times of war for home consumption and for our export trade.

In order that this country may reap the full benefits of the scientific instruction so generally provided in our universities and technical schools, it is essential that our manufacturers and employers should recognize to a far greater extent than they now do the value of science in its application to productive industry. It would seem that the commercial advantages to be gained by the addition to every factory of a well equipped laboratory for the testing of materials, for research work and the development of new processes, and by utilizing in the daily routine and conduct of business the services of trained scientific experts are still inadequately appreciated; and yet, it is only by such means that the aim and results of any well organized system of technical education can be fully realized.

P. MAGNUS.

**TECHNICAL EDUCATION BOARD (LONDON), THE.**—(See LONDON COUNTY COUNCIL, EDUCATIONAL WORK OF THE.)

**TECHNICAL INSTRUCTION ACTS.**—The Technical Instruction Act, 1889, gave power to the council of a county, borough or urban district as local authority "to supply or aid the supply of technical or manual instruction" by grants—not to exceed in the aggregate the produce of a penny rate—to school boards and other (existing) institutions within the area of the authority. Grants were to be "exclusively in proportion to the nature and amount of efficient teaching," but with the restriction that pupils in attendance at public elementary schools should not be eligible; there was to be freedom from religious test or condition, and no distinctive religious catechism or formulary should be taught.

**The Local Taxation (Customs and Excise) Act, 1890,** permitted in addition the allocation of local shares of the "residue" of customs and excise duties for purposes of this technical instruction.

**The Technical Instruction Act, 1891,** extended the power of the local authorities so that (a) arrangements could be made beyond their borders—in the absence of adequate opportunities within—by (i) grants, no longer "exclusively in proportion to the nature and amount of efficient teaching," and (ii) scholarships and payment of students' fees; and (b) money not allocated during the financial year might be at disposal on later decision.

**The Technical and Industrial Institutions Act, 1892,** gave certain powers for the acquisition and holding of land for promoting technical and industrial institutions and training.

The Technical Instruction Acts were repealed by the Education Act, 1902; the new local education authorities having these and other powers secured under Part ii of that Act.

A. E. L.

**TECHNICAL INSTRUCTION TO PURE SCIENCE, THE RELATION OF.**—Technical instruction provides training for those who enter industrial

occupations which are dependent upon the principles and practice of science and of art. The industrial applications of art lie outside the scope of this article, which is restricted to the relation of pure science to the technical instruction of those preparing to enter, or already engaged in, scientific industries.

Whilst it is generally recognized that a knowledge of pure science must form the basis for the study of its technical applications, there is much divergence of opinion in regard both to the manner in which it should be studied and to the scope of the instruction that should be provided before any real teaching of technology is commenced. The requirements of different grades of workers are by no means similar, and the part pure science should play in their technical instruction must largely depend upon the type of work for which they are prepared. Apart from the exceptional cases of outstanding ability in which men will, of themselves, rise above the positions for which they have been initially educated, the training in pure science should enable each grade of worker to understand the general principles of his technical work, and learn the relative value of his own labours in the cycle of operations. The relation of technical instruction to pure science is, therefore, different—both in kind and in degree—in the training for such different positions as those of workman, foreman, manager, or leader of industry.

**The Scientific Training of Workmen or Foremen.**

The teaching of pure science to those preparing for positions as workmen or foremen is of little value if treated from an academic point of view. Effective instruction must be associated with the materials and processes with which the student is familiar. The principles of the sciences concerned can, in most cases, be initiated from any carefully-chosen examples; and, by selecting concrete illustrations of which the student has direct knowledge, his interest is far more easily aroused, and the teaching is more effective, than is possible if the instruction be attempted in an environment of unfamiliar materials and methods. Such instruction implies on the part of the teacher a full and first-hand knowledge of the relation of science to technological requirements, and a full understanding of duties and opportunities of the worker; it has the advantage of bringing home the value and help of science in industrial development, and of securing the appreciation of the student in a way that may lead him to further study.

**The Training of Managers and Leaders of Industry.**

The relation of technical instruction to pure science in the training of managers and leaders of industry must be regarded from a different standpoint. Their vocational requirements involve the control of a variety of processes, the co-ordination of many units of manufacture, the control and testing of supplies and of intermediate and final products, and the investigation of new materials and methods. To fulfil the responsibilities involved in such duties, the technical instruction provided must be based on a thorough knowledge of the sciences concerned. The study of pure science in curricula such as those provided at the universities and higher technical institutions forms the type of preparation required, but it is important in this case also that the study should not be too academic in character. The instruction should include considerations essential to technical practice, such as the sources of supply and cost of material, and the demand for, and uses

of, final products. In addition, the many examples of scientific discoveries which have attained important industrial applications afford excellent opportunity for pointing out the relation of pure science to technical progress. On these lines, science is brought into touch with technology, so as to provide a link between technical instruction and the scientific principles on which it is based. For the training of leaders of industry, it is further essential that they should acquire some knowledge of the methods of research employed in science, so as to enable them to appreciate the potential technical value of scientific investigations which have not yet passed beyond the experimental stage.

**Research and Discovery.** No marked line of demarcation need obtain between the teaching of science and the subsequent technical instruction for the higher grades of workers. The specific teaching of technology should be based on the previous scientific training, and should accordingly be of a post-graduate character. The introduction of manufacturing conditions, and of operations on a manufacturing scale, into teaching curricula has very definite limitations, and attempts that have been made in this direction have seldom proved successful. Large scale operations are too lengthy and too costly as a means of instruction, and, even if carried through, they become unreal on account of lack of responsibility for the results obtained. This factor of responsibility for work done, which plays so important a part in actual practice, is most difficult to introduce into technical instruction, apart from original investigations; it is on this account that a training in research work has such great educational value. But it is a fallacy to regard the scale of the operation as sufficient to bring the factor of industrial responsibility into technical instruction. Such instruction should consist of a training in the technology and principles of the specific industry, in the methods of control that are employed, and in the economic considerations that are concerned. It thus forms a proper sequel to the instruction in science on which it is based. The technical bias given to the earlier stage of the training in pure science should, therefore, find its complement in a scientific bias to the technical instruction that follows it. In this connection, the study of the technical development of discoveries in pure science is of especial value, as it gives opportunity for elucidating the difficulties that have accompanied the practical adaptation of experimental results, and the methods by which they have been overcome. Converse illustrations of the contributions of industrial methods and results as the origin of scientific investigations are of similar value in correlating the mutual dependence of science and industry.

C. A. K.

#### TECHNICAL SCHOOL BUILDINGS.—(See BUILDINGS, SCHOOL.)

**TECHNICAL SCHOOLS IN GREAT BRITAIN AND IRELAND.**—The history of Technical Education in the United Kingdom has its beginnings in the closing years of the eighteenth century. In 1795, John Anderson, M.A., F.R.S., Professor of Natural Philosophy in the University of Glasgow, left by will practically the whole of his property, which included a general museum, library, and valuable philosophical instruments, "to the public, for the good of mankind and the improvement of science" in an Institution to be denominated

"Anderson's University"; and in 1796 the Andersonian University was constituted by charter. In 1799 Dr. George Birkbeck (*q.v.*), was appointed Professor of Natural Philosophy in the new Institution. In the fulfilment of the duties of his chair, he required a large amount of scientific apparatus; but he had much difficulty in obtaining it, and had frequently to go to the different workmen employed to explain the nature of the details he required. He was struck by the skilled workman's ignorance of scientific facts and principles, but was no less so with the curiosity they displayed and the interest they evinced, and so he arranged a course of lectures in the elements of natural philosophy for "common mechanics" upon "The Mechanical Properties of Solid and Fluid Bodies illustrated by experiment." Before they were concluded there were 500 artisans in regular attendance.

Twenty years later, in 1823, the workmen attending the lectures in the Andersonian Institution severed their connection with it, and formed the Mechanics' Institution of Glasgow, Dr. Birkbeck being the first patron. It was the precursor of the present Royal Technical College of the City.

Nothing in the meantime had been done to extend the idea of scientific and technical training for artisans to the rest of the kingdom, except in Edinburgh, where a School of Arts had been founded in 1821 "to supply instruction in the various branches of science which are of practical application to mechanics in their several trades, so that they may the better comprehend the reason for each individual operation. It is not intended to teach the trade of the carpenter, the mason, or the dyer or of any other business, but as there is no trade which does not depend upon scientific principles, to teach what these are and point out their practical application." This is the *raison d'être* of the technical instruction of to-day. Based upon this scheme, numerous mechanics' institutions sprang up, chiefly in the North of England, Manchester being the first town to erect a building, which was opened in 1825, specially designed for the purpose.

**The Influence of International Exhibitions.** Just as the technical training of the artisan was unsatisfactory, so too was the training of designers in the artistic crafts and industries. Attempts, more or less successful, had been made to establish Schools of Design as early as 1837. The advent of the great Exhibition of 1851 (largely due to the initiative of Prince Albert) was conclusive as to the superiority of foreign design and artistic manufacture, whilst it demonstrated no less clearly the superior position held by the United Kingdom in engineering and like constructive arts. It led directly to the institution of the Department of Science and Art as a function of the Government. But the International Exhibition held in Paris in 1867 marked a great advance in the excellence of manufactured goods and of engineering products shown by foreign nations, and made clear that the technical productions of this country had receded from the high position they had occupied some sixteen years before. It was so convincing that it led to a serious agitation for reform in our educational means and methods, especially in their application to technical training. In 1869 there appeared a volume written by Mr. J. Scott Russell, F.R.S., well-known as the designer of the Great Eastern, entitled *Systematic Technical Education*



for the English People, the object of which was "to move the minds of English statesmen towards making the English nation the best educated people in Europe." No more powerful or better treatise has ever been written on Education. It is a veritable *vade mecum* for all those concerned in the educational well-being of the people.

**Government Aid.** The Department of Science and Art had meanwhile gone far, by its examinations and grants, to offer the means of training to the industrial class. The establishment of scholarships and exhibitions by Sir Joseph Whitworth in 1868 made it possible for numbers of artisans to receive a thoroughly effective training in technology in the Royal Colleges of Science. In 1882 the Government, to ascertain authoritatively the facilities which existed on the Continent and in the United States, appointed a Royal Commission to inquire into scientific and technical education in these regions, and they produced an epoch-making report, which showed conclusively how far the countries visited (especially Germany, France and Switzerland) had excelled in the provision of scientific and technical education—notably as regards the training of the leaders of industry.

The Livery Companies of London, having regard to their origin as Trade Guilds, established in 1882 (1) the first technical day and evening college that could properly be so called, namely the Finsbury Technical College, (2) and subsequently the City and Guilds Central Technical College at South Kensington, opened in 1884 and now incorporated in the Imperial College of Science and Technology of the University of London; (3) the Department of Technology, which took over the technological examinations of the Society of Arts, which were few in number, and greatly developed them, encouraging the formation of technical classes all over the United Kingdom by paying, for a few years, grants upon the results of instruction. In 1881 there were 23 subjects of technology taught in 78 centres, attended by 2,500 students. In 1914 the numbers were respectively 73, 407, and 55,996, but in 1919, the numbers had fallen, largely due to the incidence of the great European War, to 65 subjects of examination held at 312 centres with 29,315 students in attendance.

But the greatest impetus in aid of technical education was given by: (1) The Technical Instruction Act of 1889, empowering Local Authorities to aid and promote technical education; and (2) the Local Taxation (Customs and Excise) Act of 1890, which allocated some £800,000 amongst the various local authorities for the same purposes; (3) the unifying of all forms of education under the direct control of the local authority by the Act of 1902. These enactments led to the erection of a large number of technical schools throughout the Kingdom. Many specialize in local industries. Some, such as those of Manchester, Leeds, Sheffield, Bristol, Glasgow, Edinburgh, Belfast and several of the London polytechnics, are in close relation with the local universities so that their day students can, on conforming to certain conditions, graduate therefrom.

According to the Report of the Board of Education for 1918-19 the number of evening and other part-time schools in England and Wales in 1917-18 was 3,977 attended by 590,887 students. There were also in the same year 131 large institutions aided by grants from the Board attended by 1,200

students in technical institution courses and 9,166 in advanced day technical classes. The number of junior technical schools in England and Wales was in the same year 72. The number of instances in which employers, possibly in anticipation of the operation of section 10 of the Education Act of 1918, had made arrangements for their apprentices and other young employees to attend classes during working hours had largely increased.

When the Education Act of 1918 was passed there were at least 2½ millions of young persons between the ages of 13 and 18 years of age who had ceased all systematic education on leaving school. This beneficial measure, the full fruits of which we are yet to reap, abolishes from the appointed day (not yet fixed), all half-time attendance at school between the ages of 12 and 14 throughout England and Wales and requires the compulsory attendance of all children until the end of the school term in which they reach 14 years of age. It, moreover, enjoins upon local authorities the provision of the means of continued education for 280 to 320 hours within the working time during 40 weeks in the year and makes compulsory attendance thereof of all young persons up to 16 years of age who enter into employment. Thereafter (though this section of the Act does not come into operation until seven years after the appointed day for this section) it requires the attendance of all young persons, with certain exceptions, up to 18 years of age at some approved form of continued education which will be chiefly technical, for a like number of hours per year.

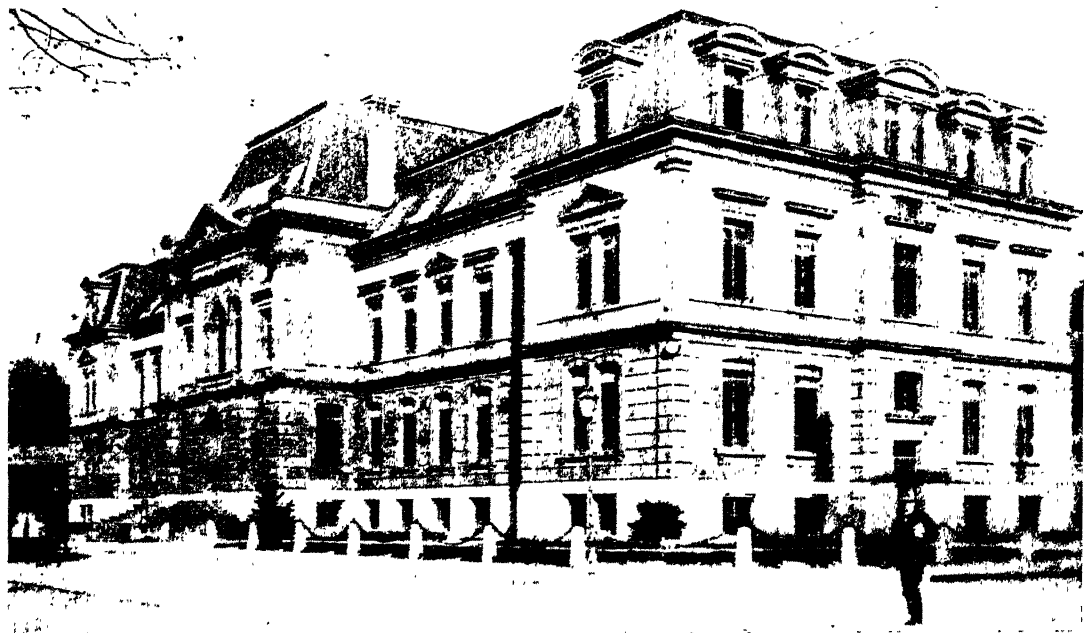
There still remains a vast work to be done especially for the more efficient training of the leaders in industry and commerce, and also of the various grades of employees. J. H. R.

**TEETH, THE CARE OF.**—(See ORAL HYGIENE.)

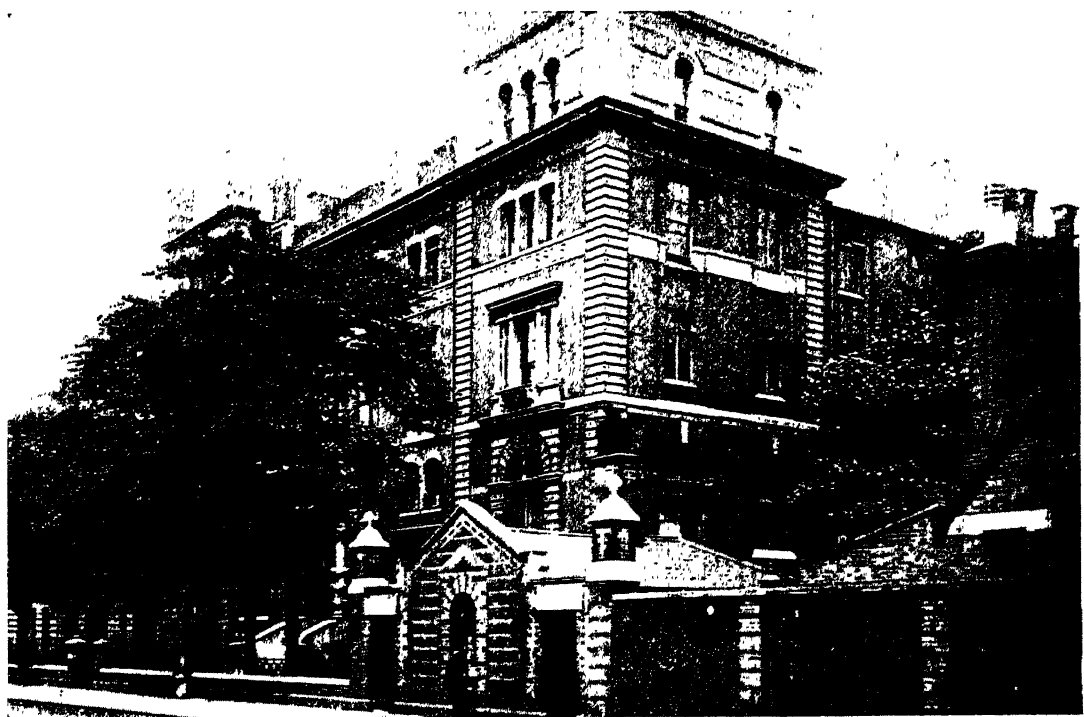
**TELESCOPE, USE IN SCHOOL OF A.**—(See ASTRONOMY, HOW TO TEACH.)

**TEMPERANCE.**—The original meaning of the word *temperance* was "rational self-restraint" with regard to any indulgence—the *ἐγκράτεια* of the New Testament. That in England it has come mainly to connote self-restraint as regards alcoholic drinks bears witness to the outstanding harm resulting from them; and the further fact that, of recent years, the word when used in this connection has come mostly to mean abstinence from such drinks, testifies to the growth of a widespread belief that wise self-mastery is such abstinence. This belief, however, is not modern only. From the earliest times, individuals (often of mark), sects, tribes, and nations have forsworn alcohol, though weaker drinks, taken at longer intervals and with food, combined with open-air life, minimized the evil in those days.

The above-mentioned narrowing connotation of *temperance* corresponds, as we should expect, with changes in the habits and culture of our people. The early "convivial" drinking, whilst often heavy, was vastly less degenerative than is the steady "industrial" drinking of the more highly-strung town-dwellers, who constitute 70 per cent. of the population of England and Wales to-day. With less apparent drunkenness, the evils have become more serious; whilst the strides in general culture and in physiological research have opened our eyes to the harm even of small doses when frequently taken.



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The altered attitude of the public mind toward the use of alcohol is mirrored in our legislation, fettered though this is by powerful private interests; in the increasing disuse of alcohol in medicine; and in the issue by the Board of Education of a "Syllabus of Lessons on Temperance." The law now strives in quite unusual ways to protect the child from the use of alcohol; the most scientific physicians veto alcohol for the young; whilst the hospitals are increasingly discarding the employment of alcohol even as a drug; and the Syllabus says emphatically that young people ought never under any circumstances to take alcoholic beverages, unless by a doctor's express order.

**Compulsory Teaching.** The question whether the teaching of this subject should be compulsory in our public schools has been much debated, and America has been quoted as an example to the contrary. So far as failure can justly be charged, however, it would seem to arise from "the American system's weakest point, the teacher." Skill in teaching, a knowledge of the subject, and personal practice in conformity with the teaching, are all required. The (1919) Regulations for the Training of Teachers state that the Final Examination for Students in Training Colleges will, after 1920, include a paper bearing on this subject.

And if, as Fitch used to insist, the purpose of a true education is to make men—by which he means Aristotle's "men of perfected self-mastery,"—men in whom "the appetitive principle" shall "be accordant with reason," it is clear that a true education will impart knowledge to the young regarding everything which tends to harm body or mind, and especially regarding that which so often enslaves men.

**The Method of Teaching.** When considering the manner in which this knowledge should be imparted, it must be evident that the younger the child, the more important is it that the knowledge should be deduced from that which is happening round him and in which he is interested, and that "temperance" should not be regarded as in any sense a separate subject, at least until the more purely scientific stages are reached. The alert teacher, anxious to "make men," will note the many points at which temperance, in its wider and its narrower senses, bears on life; and will tactfully choose and use illustrations that befit the age of his pupils. Clearly, the argument that will tell most upon the younger pupils is the fact that the bodily powers are more successfully exercised without alcohol (e.g. feats of walking, running, cycling, boating, swimming, shooting, wrestling, weight-lifting, endurance in long marches, and resistance to great heat and to intense cold). Mountaineering will appeal to elder children and is an excellent illustration, for it not only shows what feats of endurance and nerve can be accomplished without alcohol, but also, by the yearly publications of the various alpinist societies, indicates how practical experience gradually led up to the rules that "the higher you go, the less alcohol you may take"; and that "upon the eve of, and during a tour, alcohol should be entirely avoided."

Again, pupils of every age can be interested in the economic side of temperance: they may calculate the yearly expenditure upon the daily consumption of beer and what might be done with the money; or the amount of expenditure on barley, rice, sugar, etc., and of human labour, in the manufacture and sale of alcoholics; or the loss in standing

and running expenses of firms employing men whose habits cause from 5 per cent. to 25 per cent. of absence, as compared with that of a firm employing 150 abstaining artisans where the lost time varied only from .3 per cent. to 1 per cent. in any year, as has been certified to be a fact.

**Effect on Health and Efficiency.** Space will not allow of more than a reference to the interesting researches of Kraepelin and his school into the effect of alcohol upon mental processes, which would require an article to themselves. *Die Alkoholfrage*, by Dr. Helenius, gives the most complete account of these researches outside the almost inaccessible original monographs. For Rivers's criticism, see his *Influence of Alcohol on Fatigue*, and the present writer's "Plea for Increased Scientific Research" (*Nat. Temp. Quarterly*, Dec., 1910). But more convincing to the young are the *dicta* of eminent men (e.g. Huxley's statement that his best work was done when there was "not a trace of alcohol in his composition"; Helmholtz's, that the smallest quantity of alcohol seemed to scare his highest conceptions away; Goethe's declaration that the less wine he took—he was taking "almost none"—the keener became his fitness for active life; and Maudsley's, that a man "will certainly do harder and sounder work without alcohol"). The unquestioned fact should be insisted on, that the highest brain functions suffer first, and that apparent stimulation of any brain function arises from the paralysis, the narcotization, of the highest control, which allows, up to a certain point, freer—because less self-criticized—utterance.

The effect of alcohol upon health, and consequently upon length of life, will mostly interest elder children only. Material is abundant from the statistics of the Army, benefit societies, and insurance companies. The average Rechabite, for example, between 25 and 65, has twenty-nine fewer weeks of illness than the average Oddfellow. Again of 61,215 average men, between 25 and 65, 1,000 die each year; whereas 1,642 publicans die, and only 560 Rechabites. That alcohol lowers the blood's resistivity to toxic influences is established by clinical experience, and this is amply supported by Laitinen's classic experiments with delicate blood-tests. And, lastly, those more advanced in age cannot fail to be impressed by Laitinen's great research: *The Influence of Alcohol on the Degeneration of Human Offspring*, and by Stockard's work.

It is needless to point out the harm of exaggeration. If we call alcohol a narcotic poison, we must explain that only a very large dose is ever immediately fatal, and that we specially refer to the cumulative effect of quickly repeated doses—though drunkenness in all its stages is a symptom of poisoning. Similarly, it is unwise to deny that alcohol contains nutrition. Researches conflict. But Atwater himself, who more than others has established its claim to be nutritious, declares that its food-value is negligible compared with its drug action, and that this, "even when it causes no symptom of intoxication, may impair the efficiency of the most productive muscular or mental work." Again, we must avoid such assumptions as that, because the son of a drunken parent takes to drink, his parent's habit was the cause, whereas it may be that an inherited mental defect was the cause in both cases. It is, however, obvious that neither would have become drunken had he never taken drink; and Mott and Hyslop agree in the belief that

any inherited mental defect shows itself earlier in the child if the parent has been inebriate.

The tragedies caused by alcohol may well be kept from younger pupils. The resultant poverty, misery, insanity, and crime will force themselves upon these soon enough: to-day, at least, the teacher will not lack material for illustration should the moment come to use it, whilst accepting current estimated percentages with much reserve.

The teacher, whilst well aware that many men live long and useful lives with a regular restrained use of alcohol, and without inquiring whether scientific tests would not find some loss even in these, can hardly hesitate to commend abstinence as conducing to "perfected self-mastery." And if, in bringing his pupils to this point, he has succeeded in fostering in them an alert and scientific "health-conscience," he may feel that he has helped to steer them through other dangers in their lives.

T. N.

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**TEMPERAMENT AND EDUCATION.**—The word and notion of temperament play a considerable part to-day in the discussion of problems of art, religion, and social relationship, as well as of education. Yet the subject is one upon which systematic psychology has, as yet, little guidance to give. In popular usage the term seems to cover whatever can be grasped of the peculiar mental constitution of the individual, though with special emphasis upon emotional characteristics. Psychologists have, on the whole, accepted this usage, while urging that only inborn characteristics should be included under temperament, and keeping the word true to its origin by emphasizing the dependence of the mental peculiarities upon bodily constitution. Thus, Mr. McDougall suggests that temperamental factors may be grouped in two principal classes, according as they are due to the functioning of the bodily organs, influencing the nervous system, or to general functional peculiarities of the nervous system itself. (*Social Psychology*, 3rd Ed., p. 117.) Under the first head, the influence of such functions as digestion upon the general tone of mental life has long been a commonplace, and it is now well recognized that the educator, seeking the source of unfavourable characteristics in the individual, must take account of everything affecting his organic welfare; e.g. such factors as rest, exercise, suitable food, may be as important as any in helping the sufferer to contend against a temperamental bias toward gloom or irritability. Under the second head come factors some of which have begun to be investigated by experimental methods; e.g. the nervous system in different individuals shows differences in rapidity of response to stimulus, and this "reaction time" can be investigated by experiment under various conditions.

**Motor and Sensory Types.** By help of introspection in these reaction tests, differences in the natural or habitual direction of attention have been exposed, some subjects fixing attention rather upon the movement to be executed, others upon the stimulus. It seems possible that this difference may be connected with one of those pervasive differences of type among individuals which ordinary observers have already marked out. Those subjects who tend to throw attention forward to the movement have been distinguished as "motor" in type, the others as "sensory." Comparisons of the general behaviour of individuals seem to reveal a contrast of types: (1) "motor" or impulsive, eager in action, less ready to qualify action by experience; (2) "sensory," slower to act, more reflective and cautious. Prof. J. M. Baldwin (*The Mind*, ch. VIII) has worked out this contrast of types in its educational bearings, showing how the main problem in the case of the "sensory" child is to stimulate to expression, in the case of the "motor" child to encourage some interposition of reflective process between stimulus and response.

At present such general discussions do not seem capable of being closely related to existing experimental researches, regarding the interpretation of which there is considerable difference of opinion; but they suggest a direction in which it may some day be possible for the psychologist to give more definite help to the educator in dealing with different temperaments. A. M. B.

**TEMPERATURE SENSE.**—(See CUTANEOUS SENSATIONS.)

**TEMPLARS, KNIGHTS.**—(See CHIVALRY AND EDUCATION.)

**TEMPLE, FREDERICK (1821–1902).**—Archbishop of Canterbury, was educated at Blundell's School, Tiverton, and at Balliol College, Oxford, where he became distinguished as a mathematician and as a classical scholar. In 1842 he became lecturer at his College, but left in 1848 to undertake work under the Committee of Education, first as examiner at Whitehall, and then as principal of Kneller Hall, Twickenham, a training college for schoolmasters. When Kneller Hall was closed in 1855, Temple became inspector of training colleges for schoolmasters. He was now a recognized authority on education, and in 1850 successfully proposed reforms to the Oxford University Commission. In 1857 he was instrumental in persuading the University of Oxford to take steps which afterwards developed into the Local Examinations. In 1857 he became head master of Rugby School, where he enlarged and improved the teaching and study of English history, language, and literature, and introduced natural science, music and drawing into the curriculum. In 1869 he became Bishop of Exeter, in 1885 Bishop of London, and in 1896 Archbishop of Canterbury. While Bishop of Exeter he was instrumental in founding secondary schools, and a system of exhibitions enabling the poorest child to rise from the elementary school to higher classes of schools. The result was that a larger percentage of children were receiving secondary education in Exeter in 1900 than in any other city in England. His last public speech was delivered in the House of Lords eighteen days before his death in

support of Mr. Balfour's Education Bill of 1902. His writings are chiefly sermons and other works on religious subjects.

**TENISON, ARCHBISHOP.**—The terrible blow struck at English education by the Conformity legislation of 1662-5, was not arrested by the Church, despite the efforts made for re-union for educational purposes, by Tillotson (*q.v.*) and Baxter (*q.v.*) respectively, between the Church and Dissent. Archbishop Tenison of Canterbury (1694-1715) helped in the movement for the supply of elementary schools in London, and as Archbishop strove to secure the best teaching throughout his diocese. This was the best answer to the intolerance and stringency of men like Archbishop Sheldon, and it is well exemplified in Tenison's letter to the Bishops of his Province of 1695, directing them "to take all possible care that there be good schoolmasters in the several public schools within your diocese, not licensing any but such as upon examination shall be found of sufficient ability, and do exhibit very satisfactory testimonials of their temper and good life; that so in the education of youth, especially such as are designed for holy orders, there may not be an ill foundation laid." The effort came too late and it was in Tenison's time (1695) that Parliament (11 & 12 Will. IV, c. 4 s. 3) imposed imprisonment for life on papist school teachers. J. E. G. DE M.

**TENNYSON'S POEMS IN TEACHING HISTORY, USE OF.**—(See BALLADS AND LYRICS IN HISTORY TEACHING.)

**TENURE OF TEACHERS.**—Persons engaged in teaching divide naturally into two distinct classes. One group includes all those engaged in teaching as a private enterprise, as a business in which they have embarked their capital and from the profits of which they take their remuneration; or as employees of others who occupy the position of principals of a commercial business. Their tenure of office naturally varies with the contract of service entered into by each individual; and, in case of dispute, a court of law would be invoked to determine whether or not the terms of such contract had been observed.

**Primary Teachers in Publicly-controlled Schools.** The other, larger, and from the public point of view, more important group, embraces all teachers employed by some responsible public or semi-public body (*e.g.* local education authorities, governors of endowed or foundation schools, establishments working under educational charters, or any body of persons administering either public moneys or funds held in trust for educational purposes).

The number so engaged who may be regarded as public servants is so great, the forms of their pedagogical activities so diverse, the terms of their employment so various, that it is impossible to reduce to one general statement the conditions governing their tenure of office. The main factors would be the common law attaching to all contracts of service, the prevailing custom or practice, and any statutory enactments applying to special cases. Important in this connection are modifications and concessions brought about chiefly by the untiring activities of professional organizations whose business it is to guard the interests of their members with special reference to terms of

appointment and dismissal, remuneration and conditions of service. Apparently there has not been any serious attempt to secure an absolute fixity of tenure for teachers working in educational institutions supported wholly or partially out of public or semi-public moneys. It would be obviously against the public interest to retain the incompetent in ability and qualification, the unsuitable in temperament, the immoral in conduct. What has been aimed at is to secure for the capable, the sympathetic, and the upright, some assurance of continuity of service, and some protection against the possible caprice of those appointed by the public to control public finance. Here, again, the variety of educational establishments is so great, and the nature of the attempt to obtain a reasonable security, as distinguished from fixity, of tenure has been so determined by the individual case, that no connected and co-ordinated efforts have been made, and probably could not be made, to define or determine a mode of operation suitable to all grades of the teaching profession. Probably the most successful efforts have been made by the National Union of Teachers (*q.v.*). The local education authorities which administer such schools are in the direct line of succession to the old school boards, and inherit their powers and duties. The Act of 1870 empowered a school board to appoint the necessary teachers "to hold office during the pleasure of the board," and this provision still operates. But, under common law, such teachers have a right to a reasonable notice of dismissal; and while the usual custom is a three months' notice in the case of head teachers and a one month's notice in the case of assistants, the employer still retains the power of summary dismissal in cases of grave moral offence or such other cause as might be fairly adduced as sufficient to warrant termination of engagement. In the view of the Union, cases of capricious dismissal were too common, and to further protect its members it has endeavoured to secure by legislation a Court of Appeal for teachers under notice of dismissal. Failing in this direction, it set to work to utilize the existing administrative machinery, and has so far succeeded, that it may fairly be said that, as a general rule, education authorities have established some form of appeal court whereby a teacher about to be dismissed or called upon to resign may appear before his employers, either personally or by representative, and show cause why he should be retained in office.

**Service under Governors or Trustees.** Of the grades above the primary schools, it may be said that, where controlled by public or semi-public bodies, either elected education authorities or bodies of governors or trustees acting in a public capacity, the conditions of holding of office are very much the same as those just mentioned. A practice used to exist in endowed or secondary schools under which the principal was appointed by the governing body, but the appointment and dismissal of members of the staff was then left in his hands. This is being gradually changed. The Technical Education Board, in considering new schemes for secondary schools presented to it, made a practice of securing the insertion of provision for placing in the governor's hands the appointment and dismissal of assistant teachers. In the same connection an important advance was made in 1908, when in the Endowed Schools (Masters) Act it was provided that there should be given "by or

on behalf of the governing body of the school " "at least two months' notice of dismissal."

Such a notice, emanating from the governing body, would usually enable a servant under notice of dismissal to bring his case before his employers for review, withdrawal, or modification. F. C. B.

**TERMINOLOGY.**—The use of terms or names in any subject of knowledge. The establishment of a complete system of terms with definite and agreed meanings is essential in every technical science, as upon it depends the accurate use of the terms, and the value of logical judgments and inferences based upon their use. In an exact science, such as geometry according to the treatment of Euclid, the first essential is the definition of the terms to be used. But it is not customary to prefix definitions of terms to books on science, and in most cases the student relies upon the general dictionary, which is not compiled for the specific use of any given subject. Confusion arises because many terms are used in several kindred subjects, but with variations of meaning. Many difficulties are caused in education by confusion between popular ideas and scientific notions. Terms are used in common language to denote popular ideas, and the same words must also be used by teacher and scholar with their exact scientific meanings and application. A simple illustration is afforded by the word "circle," popularly a line, scientifically a surface.

**TERENCE AND SCHOOL DRAMA.**—(See DRAMA, SCHOOL.)

**TESTS.**—For many years the question as to the best means of testing mental ability and progress has occupied the minds of educators. At present the general method of the written examination still prevails, although there is a tendency to replace this to some extent by oral tests and inspection of school records.

During the last decade a great deal of work has been done along the lines of the experimental investigation of mental characters, which has resulted in the development of a system of psychological tests. Very great strides have been made in the evolution and standardization of such tests, and it is now possible to make use of tests which have been proved reliable by various investigators.

In comparing the relative values of the examination system and the various methods of mental measurement, it is interesting to note that the former tests more or less acquired knowledge, while the psychological methods aim at testing innate capacity.

The drawbacks to the examination system are well known. No examination is really a test of intelligence, but rather of the power of the individual to sort out data and express himself. Here many factors come in, amongst which the type of memory and the individuals' reaction time affect examination results strongly. Individuals vary also in the emotional effect an examination produces. The highly strung child, who would naturally respond to some other test, is inhibited by the fear of the result, and does far worse than the stolid unemotional child of inferior intelligence and more limited knowledge.

At present in spite of these drawbacks the examination is the only adequate general means of standardizing mental equipment, and will remain so until a more comprehensive method can be devised.

### Psychological Conditions of Mental Measurement.

In considering the psychological methods of mental measurement, we find that there are two sources of difficulty: (1) the difficulty of getting the conditions uniform; (2) the difficulty which arises from the uncertainty as to the mental factor or factors involved in each test.

The latter has, to some extent, been solved by careful and prolonged experimentations which have resulted in the standardization of certain well-known tests for special mental factors such as visual acuity, co-ordination of hand and eye, attention, reasoning and other of the higher mental processes. (See References *infra*.)

One of the most noted series of tests of this kind is the Binet-Simon series (*q.v.*). This has been used with marked success in French schools, and forms the foundation of many of the tests applied in England to decide whether a child is mentally deficient or abnormally backward. The tests comprise a series of graduated questions for each year, and the child is placed according to his power to answer the questions for his age, as normal, below the normal, or precocious.

The difficulty in connection with the uniformity of conditions for psychological tests has still to be solved, although much progress has been made in this direction.

These tests are of two kinds: (a) those that are done in the laboratory to subjects who have had special training for the work; (b) those that are applied to classes of individuals simultaneously. The former type of test is applied under definite conditions and with many repetitions. The results suffer from the limited number of subjects tested.

In the latter type this difficulty is eliminated, but another one arises; *i.e.* that of making the conditions under which the tests are applied sufficiently homogeneous. In giving mental tests to school children, it is necessary that the repetitions be taken at the same hour of the day, on the same day of the week and with all other conditions as uniform as possible. It is unsatisfactory to combine the results obtained from different schools and even from different classes, as the personality of the class teacher may have a very strong influence on the way in which the tests are performed. Many of the results of experiments conducted on a large scale have been vitiated by sufficient attention not having been paid to such precautions.

Probably the use of psychological measurement in testing mental capacities will gradually replace the examination system, but this cannot take place until specialists are trained for the work. At present the psychologist lacks direct knowledge of the children, while the teacher has neither the time nor the training to undertake such work. It will be necessary to have individuals drawn from the ranks of experienced teachers and given a special training in psychology, who will be able to devote themselves entirely to the problem in hand. Until this reform is made, there is little chance of mental measurement superseding the older method of examination. M. J. R.

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**TEXT-BOOKS. THE USE OF.**—Three principles stand out in reference to text-books for school use. (1) In all subjects forming part of the literary, mathematical, or scientific sides of the curriculum, text-books appear to be a necessity. Without them the teaching is likely to become desultory and ineffective. (2) The text-book supplements but does not replace the teacher. It helps both teacher and scholar; but oral teaching is more vivid and impressive, for the majority of scholars, than explanations read in text-books. Therefore a school text-book should aim at giving the information or the material required for the lesson, leaving to the teacher the choice of method in presentation. (3) Pupils learn, in the main, by doing rather than by reading about how a thing should be done. Therefore, text-books should indicate lines of study and should not attempt to be exhaustive. Books of reference for older pupils are not properly text-books for use in schools.

*The choice of a text-book* should only be made after the teacher who is to use the book has read it or worked it through in such a way as if the class were joining in the work, testing it at each stage in reference to the class. Careful hours spent in choosing save much annoyance and wasted effort. No one can safely choose a book except the teacher who will use it.

**Public Elementary Schools** use books which do not become the property of the children. (1) *Readers.*—The first thing (after the kindergarten stage) that an elementary school sets out to do is to teach the art of reading. Reading books are therefore a necessity, both at the beginning and throughout the school course; for, when the art of reading is acquired, it must be used in reading the thoughts, emotions, and information contained in literature. The choice of readers is of first-rate importance. According to the book chosen the children will be encouraged or discouraged in practising the art of reading. The readers must be of literary value. A simple fairy tale may be literature, because the writer felt the story and wanted to tell it; he lived through its emotions, realized its characters, and saw its setting. No book that cannot be called literature should be admitted as a reader. The choice here should be very exacting. Colourless and uninspiring compilations are to be rejected. (2) *Geography.*—Maps are more important than text-books. Descriptive and scientific geography are taught *pari passu*, and for each the teacher requires a special text-book in which the scholars may find the information (and nothing more) that is to enable them to make deductions, grasp problems, and work exercises. (3) *History.*—The teacher of history needs a text-book. Oral teaching is insufficient. But the text-book must be concise and to the point; must be fair and not partisan; must be broad and not prejudiced. It must be written by a genuine student and lover of history, and not by a compiler from other peoples' work. It is this latter sort of history reader that kills the subject. (4) *Mathematics and Science.*—In these subjects the work is rendered far more effective and definite, and is far more likely to be grasped by the scholars if suitable text-books are used. Oral lessons

not supported by a text-book leave a vague and indeterminate impression. The text-books should give the required information with simplicity and clearness, and should indicate the practical work to be done. Explanations and illustrations should be left to the teacher.

**Secondary Schools.** The suggestions made as to the use of text-books in elementary schools apply equally to secondary schools. But there is one essential difference relating to older pupils. In many secondary schools the text-books become the property of the children. This fact will often affect the teacher's choice of a book. (1) *English.*—Writers who have won their place in literature will alone be chosen for reading and study. The text-book will help by affording selections suitable in length and matter for the age of the pupils. Books about literature are to be avoided. There is an increasing disposition to prefer the "plain text." Scholarly, appreciative, pedantic and explanatory notes are alike out of place. It is only permissible for the editor to give such information as cannot be found in works of reference readily accessible. It is now generally recognized that over-annotated editions of English writers have seriously injured the study of English literature in schools. (2) *Foreign Languages.*—There are two well defined methods of teaching foreign languages: the text-books must be chosen to suit the method adopted. In the one case (a) are needed a concise dictionary, a clear outline grammar, and a plain text. For younger pupils many teachers prefer to have these three requisites combined in one book. The essential point is to decide upon what it is desired to teach and to choose text-books to correspond. For advanced pupils the study of foreign languages consists mainly of reading and writing. For this good dictionaries and sound literature are needed. Teachers who use (b) the direct method in the lower forms have a choice (in the languages more commonly studied at school) of several sound text books. The main essentials are clearness, simplicity, and careful graduation. (3) In *History, Geography, Science and Mathematics* the rules laid down in the case of elementary schools hold good for secondary schools.

Teachers are trained, skilled and experienced. They do not require in text-books to be told what to teach or how to teach. A text-book is either a teacher's tool, or it provides the subject matter of the lesson.

Text-books should be (1) attractive in form, (2) printed in clear type adapted to the age and eyesight of the pupils concerned, (3) written in clear and simple language, and (4) should be original, *i.e.* the sincere expression of the writer's thoughts.  
J. W. L.

**TEXTILE WORK IN SCHOOLS.**—The simple textile work carried out in schools with raffia straw, yarn, wool, etc., is concerned with the common problem of interlacing two series of threads in such a way as to produce an approximation to surface. This problem confronts the kindergarten child with his raffia, the older girl with her stocking darning, a boy scout with his hurdle-making, and the art student with her hand-woven piece of fine fabric. The work being rhythmic in character may prove mechanical when once the initial difficulty is overcome, being merely a lifting up of certain threads in an orderly sequence, and the drawing through of threads;





FIG. 1

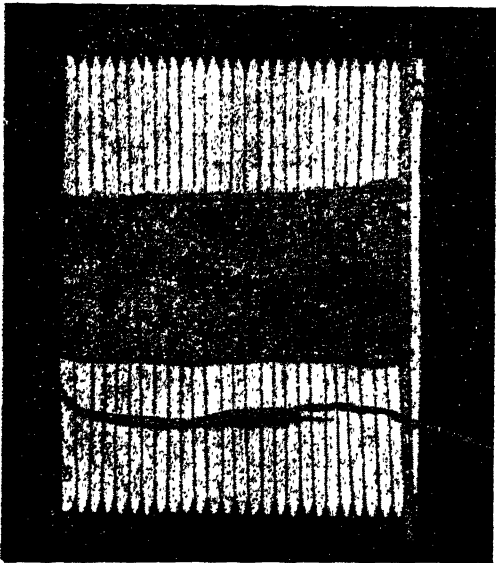


FIG. 2

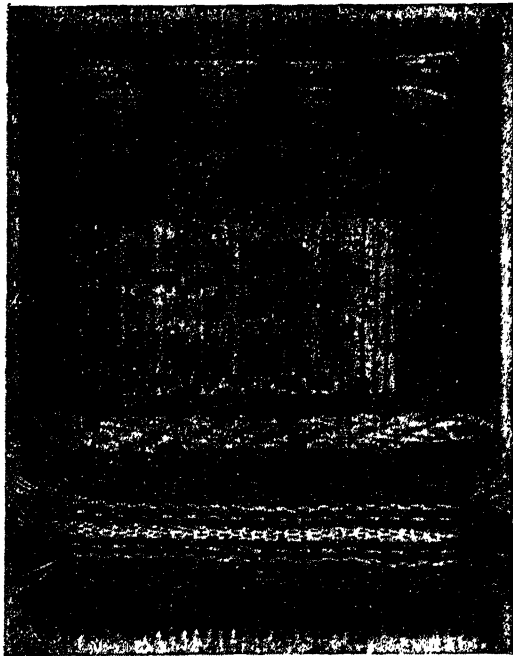


FIG. 3

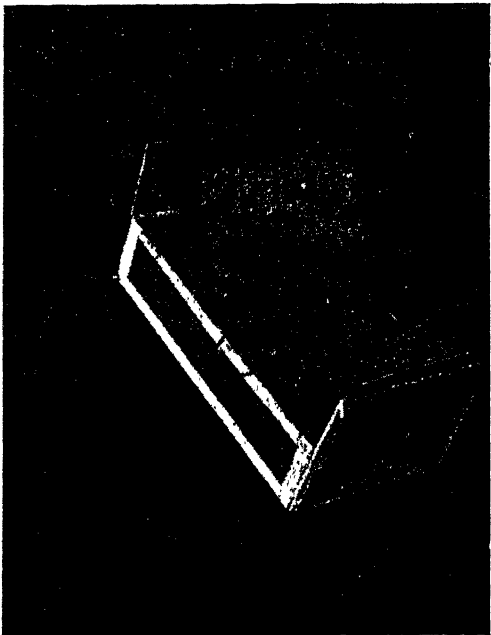


FIG. 4

and the only result may be a turning out of so many bags, rugs, etc., without much real effort on the part of the worker. If this danger be fully recognized, and the art of weaving be considered from a wider view than that of the making of articles, it may, however, prove to be of great educational value. To the child, the aim will still be to make something, but his interest in so doing should help him to overcome difficulties, to invent pieces of apparatus, and so on. It is from this point of view that this article is written and illustrations given, and it is assumed that the reader is familiar with the occupations in themselves.

One fruitful way of approach is in connection with the story of primitive man. An inquiry may also be made into the way in which fabric is woven to-day, and by unravelling some loosely made stuff, two sets of threads are discovered—the warp and the woof. There follows an attempt at reconstruction, and at once the need is felt of a hanging rod round which the threads may be thrown, with another at the bottom to keep the warp threads steady and straight. A look into primitive times, and to native work to-day, shows this type of loom. Now the child is ready to appreciate the frame (Fig. 1), and prepared card (Fig. 2), and begins to weave a mat for the doll's house, a cover, or some other desirable object. At once new problems confront him. How can the "pull in" of the outer warp threads be avoided? (Fig. 3). A new significance is given to the selvage of stuff—some ways of preventing the "pull" are shown in Figs. 1, 2 and 3, and these sometimes are arrived at by the children themselves. It may be suggested to the weavers that the laborious picking up of single threads over and over again ought to be minimized. How can the threads picked up on line 1 be held up till they are wanted again at line 3? Figs. 1, 4 and 5 show some attempts in this direction. The heddle and shed are invented as the need for them arises. The need of a shuttle to obviate the constant joining of woof threads has probably by this time been realized, and of the batten to press up the woof threads evenly. Figs. 1, 4 and 5 show some of these things.

Some problems in connection with the weaving of patterns are suggested in Fig. 3. How can we make a coloured border, an outline pattern, a blot of colour in the centre? How can we join the woven border to the rest of the fabric? The warp threads in the border (Fig. 3) prevent an unbroken coloured surface, can we alter the warp threads so that they are the same colour as the woof threads in the border? (Fig. 1.) Can we make a plaid fabric now? How can we make a fringe to the edge of the mat? On showing some simple patterns of fabric, wall paper, etc., the question arises, could we copy these on our looms? Why can some be done, and others not? The joy of working in colour should be given freely, and a great mass of coloured wools and yarns, bright coloured string, and gaily dyed bast, from which the worker can choose, should be provided.

**Cane Weaving.** The same principles hold in cane weaving. An interesting problem has to be solved almost at once. In the weaving of fabric, the number—odd or even—of warp threads did not concern us, and although the simple "behind one, in front of one" stitch on an uneven number of spokes in a basket works smoothly, on an even number of spokes we find only alternate ones taken

into the weaving, and alternate ones left unworked. A consideration of the treatment of the last warp thread in a fabric gives some clue to procedure here. The one thread bears both an over and under thread, so if the cane weaver be doubled we can carry out the same treatment. Plenty of other problems arise—when to use the pairing stitch or triple stitch, how to make the foot ridge, fasten in handles, make borders, etc.

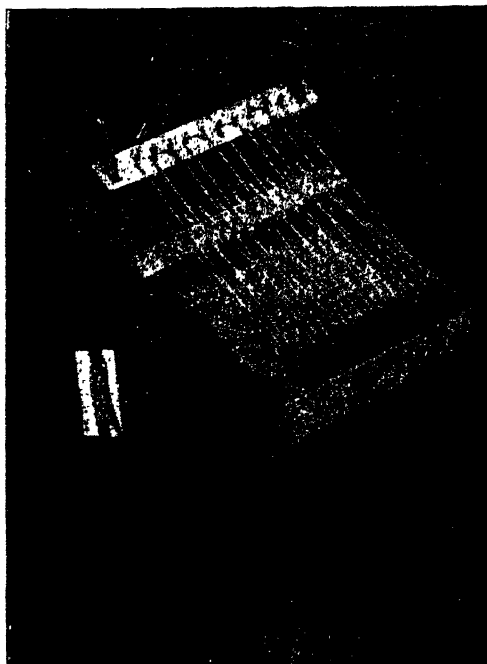


FIG. 5

The point to be emphasized in the whole of the above work, is that difficulties arise in the natural order of working, and can often be solved, partially at any rate, by the worker himself. There should be some finished work in the class, much work that can be easily undone, and suggestive models—not to be copied, but to give ideas. There should be much encouragement to examine with a definite problem in mind, and then to go back with the idea gained, making it essentially one's own by adapting to one's own work. There should be much freedom to look at others' work, and to stand well away from one's own, in order to judge of its effectiveness and practicability. Some of the old weaving songs might be learnt and sung during the work.

W. A. B.

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**THACKERAY, THOMAS.**—(Died 1760), an Etonian and fellow of King's College, Cambridge, became head master of Harrow School in succession to the Rev. James Cox who, by his "drunken, disorderly, idle life, and neglecting the care of the School," had at one time brought the number of boys down to fourteen. Dr. Thackeray had been a master at Eton previous to 1728 and then held a country living. He came to Harrow in 1746 as a reformer, and set to work to do away with the evil results of Cox's neglect. His success led to his being called the second founder of Harrow. He was a good scholar and an excellent teacher, and under him the number of boys rose to 130. He was made Archdeacon of Surrey while still master of Harrow; he was chaplain to the Prince of Wales and quickly re-established and extended the aristocratic connections of his school. In particular the school under Thackeray developed Scottish connections, and Thackeray himself received a degree in divinity from a Scottish university. He resigned in 1760, but almost immediately afterwards died and was buried in Harrow Church.

**THALES OF MILETUS.**—(See CHEMISTRY, THE HISTORICAL DEVELOPMENT OF.)

**THEODORE, ARCHBISHOP (602-690).**—It is a moot question in the history of English education as to whether the educational facilities provided by the Romans survived the Germanic invasion of the fifth and sixth centuries. That the Romanization of Britain had been thorough and had survived educationally the period of chaos that followed the cessation of Imperial control is certain, for this period produced the great British Pelagian heresy. We know also that Roman educational influence and educational forms persisted, but whether the schools set up in Kent by Augustine and his followers in the sixth century were revivals of old Roman schools is not clear. But on any event, the coming of the Archbishop Theodore of Tarsus and the Abbot Adrian in 668, definitely revived education in the island. We are told that "through their influence all the larger and better monasteries were converted into schools of learning. The schools at Canterbury were particularly notable: here Aldhelm (*q.v.*) and John of Beverley, the Master of Bede, were educated. Theodore and Adrian were thorough scholars, and Bede tells us that in 732 there were still disciples living of these teachers who were complete Greek and Latin scholars. From this period we find, from an examination of the earliest English psalters and books of Antiphons, that Greek was used in parts of the services right up, at least, to the date of the Norman Conquest. The use of Latin became once again common, which seems to suggest the persistence of the Roman tradition, so common that Bede calls it the vernacular. The English Provincial Synod at Cloves, too, under Cuthbert, Archbishop of Canterbury, confirmed (Canon 7) the work of Theodore and the whole movement led up to the age of Alcuin (*q.v.*). J. E. G. DE M.

**THEOLOGICAL EDUCATION AMONG NON-CONFORMISTS.**—To prepare for the ministry was the chief work of the universities in the seventeenth century, and when nonconformists were excluded thence, they had to make other provision. This was at first by the enterprise of private schoolmasters, chiefly ministers, who gave some of their

pupils a specialized course. The need of the churches and the poverty of the students made it necessary to establish funds and societies which maintained students at the schools of approved tutors, and the Academies (*q.v.*). Another advance was marked by the control of tutors as well as of students, so that colleges arose, governed by committees of the subscribers. The final step was for denominations to assume complete charge, supervising the choice of candidates and tutors, curriculum and premises, and the early years of ministers on probation. All four systems are actually at work now: a few men of strong individuality still train for the ministry, maintaining entire independence of committees and denominations; numerous trusts offer bursaries tenable at approved institutions; the theological colleges are so flourishing that even Episcopalians have imitated them, as at Ridley Hall; the Wesleyans have an elaborate system of connective theological education. Thus the problems and the solutions have been much the same as in training for ordinary teaching.

Theological education is almost invariably with a view to pastoral work. A student at a training college looking forward to teaching is offered opportunities of watching masters practising their art, of assisting them, and of practising under supervision. But the need of similar practical preparation for the pastorate has been recognized only intermittently and casually; perhaps Henry Drummond was the first to urge it explicitly and forcibly; the Old Dissent rarely placed a student as assistant to an experienced pastor. The characteristic method of preparation in college is for each student to deliver a sermon, not to a real congregation, but in the presence of his fellow-students and tutors, who forthwith criticize it and him. While this deals with what Nonconformists have always recognized as the prominent side of a minister's work—preaching—little is done to help on other sides of pastoral life. Occasionally, special courses are arranged from outside experts—missionaries, Sunday-school superintendents, pastors, secretaries of boards, public speakers; sometimes village churches are placed under the care of student-pastors, or summer vacations are spent at feeble churches, but little advice is given, and there is little consideration of results. Of late, a student may be detached for a year to act as assistant in some great church, and return to complete his course with a keener sense of the real problems ahead; and this is varied by evangelistic tours during the summer, in caravan or camp, or at sea-side resorts, in groups led by experienced men.

Methodists have been far more methodical than the Three Denominations. A student is chosen by a large and responsible meeting, which includes many who know him intimately. He spends three years at college for his book-learning, and then passes to a circuit as a probationer, grouped with three or four older men, studying and working under the care of the superintendent. His proficiency in learning, efficiency in work, and moral and spiritual standing, are reported upon before his probation ends and he is ordained. In this way two ideals are kept in view: the academic training desired by wealthy and cultured laymen who demand "intellectual treats," and believe that only thus can their children be kept true to their parent's traditions; and the spirituality and energy in pastoral work which are indispensable for progress and life.

**Provision in Universities.** In the early eighteenth century only the universities of Scotland and Holland were available; both were frequented by the best English "Presbyterian" pupils, and had no little to do with the growth of Arianism in those congregations. Thus evangelicals came to dislike not only those particular centres of learning, but the very idea of a university training.

The question arose how far theological education need be denominational. Several theological colleges combined in 1879 to establish the *Senatus Academicus*, which conducted examinations in all relevant branches of learning, guaranteeing that no personal views should disqualify; the success of the system encouraged the chartering of universities with similar powers, and the *Senatus* then ceased to examine. At Manchester, several neighbouring colleges, under the control of their denominations or of subscribers, are recognized as theological schools of the Victoria University, and certain of their tutors rank as university professors or lecturers, so that any undergraduate may attend their classes; the curriculum and examinations, to some extent, are planned by the faculty recruited from these staffs. Somewhat similar arrangements are equally successful at London and Leeds, while at Liverpool a Board of Biblical Studies works unofficially. In all these cases, Anglicans co-operate with the Free Churches.

At the older universities, divinity degrees are granted to Anglicans only. But there is a theological tripos at Cambridge which exacts real study, where lecturers and students are unfettered by creed; this leads to an honours degree in Arts. Nonconformists have, therefore, transferred certain theological seminaries: Mansfield and Manchester to Oxford, and Westminster and Cheshunt to Cambridge. These do not rank with the ancient colleges, which have a wider scope, but they are increasingly centres of Nonconformist education and life.

**Historical Sketch.** To enumerate the ministers who have done good private training would far exceed limits; such efforts have never been lacking, from the days of Samuel Jones at Brynllwarch and Richard Frankland in the north, to recent ventures at Dunoon and Harley.

Organization was proposed in 1675 by an Assembly of Particular Baptists, and the first step was taken by the Terrill Trust at Bristol four years later; in 1770 the Bristol Education Society widened the work. In London, the Particular Baptist Assembly Fund was started in 1689, and made grants till 1710; seven years later the Particular Baptist Fund replaced it, and still continues the same method, though since 1810 the grants for education have been enjoyed only at the college at Stepney or Regent's Park. The *Presbyterian Fund* was initiated also in 1689 on the same plan; three-quarters of its grants are now appropriated to Carmarthen College.

The *Congregational Fund* originated in 1695, and supported students under Thomas Goodwin and others, later co-operating with the King's Head Society in sending to Zephaniah Marryatt. On his death in 1754, the Society and the Fund amalgamated; the governors acquired premises at Mile End, exchanged for Homerton in 1769, and appointed the tutors in future. In 1850, a further fusion took place with the work of the Coward Trustees and the *Societas Evangelica*, and a New College was built at Hampstead.

The first academy with some public status was at Taunton, growing out of Matthew Warren's school. On his death in 1706, the neighbouring ministers consulted, and it was continued until about 1755. Another was at Carmarthen, evolving from the grammar school of William Evans; this still continues. There was a Baptist academy at Trowbridge until 1743. The Parsons' Charity of 1707, Dr. Williams's Trust of 1716, and the General Baptist Fund of 1726, are still administered on the grant system, the last now concentrating on the Midland college. The London Baptist Education Society of 1752 worked on the same plan till it merged into the 1810 society. Ward's Trust of 1754, and Clough's Trust of the next year, grant open exhibitions.

In 1730 the *King's Head Society* was formed by Congregational laymen; they sent students to Samuel Parsons and others, but after 1744 joined to patronize the Fund Academy. The *Coward Trustees* began in 1738, at first supporting students with Doddridge at Northampton, and at the Hoxton Academy till this collapsed in 1785. As early as 1751, they controlled tutors as well as pupils at Daventry and Northampton; and, when this academy forfeited the confidence of evangelicals in 1799, they established another at Wymondley. They transferred this to London in 1833 to gain the advantages of University College, and in 1850 the work was united in New College.

The *Congregational Fund Board* opened work in the West from 1752, sending students to John Lavington and others; in 1798 they transferred control to a western committee, who claimed the whole time of James Small at Exeter; under George Payne, the academy was removed to Plymouth; later it was placed at Bristol, and absorbed an institute founded there in 1863. The London Board withdrew help from Carmarthen, and in 1757 provided another academy for Wales. Local co-operation was then obtained, and a college was established at Brecon in 1836. Another evangelical enterprise was begun by London Congregationalists in 1756, as the Northern Education Society. London handed over control to Yorkshire in 1795, with the result that Edward Williams and others taught at Rotherham and in Airedale; work has been at Bradford only since 1888.

The Presbyterians made two corresponding attempts at Warrington from 1757 to 1783, and at Exeter from 1761 to 1786. On these failing, two new institutions were founded, but the college at Hackney ate up most of its capital, and is only represented to-day by the Liberal Dissenters' Endowment Fund, with £110 yearly for exhibition.

More fortunate was Manchester New College of 1786; after four migrations and the lustre of Martineau, it shines at Oxford. The last attempt of the old General Baptists to establish an academy under John Evans in 1794, resulted in a small fund which still makes grants.

The Evangelical Revival brought about new foundations. The Countess of Huntingdon established a college at Trevecca under J. W. Fletcher of Madeley; after more than a century at Cheshunt under twelve principals, it is now at Cambridge. The *Societas Evangelica* in 1778 opened a London institution which, in 1850, was merged into the New College. In 1797 the New Connexion of General Baptists established a college which, after seven migrations, is now at Nottingham. By 1803 the Village Itinerancy Association, chiefly supported

by conforming evangelicals, began training students, and to-day the work is continued at the Hackney College in Hampstead. Next year the unofficial work done by John Fawcett near Halifax was put on a sure foundation by the establishment of the Northern (Baptist) Education Society, whose work was done first at Horton and then at Rawdon. A similar venture in London languished till, in 1810, a Baptist Academical Institution was founded at Stepney, into which all previous metropolitan efforts merged. The college, now at Regent's Park, is to-day an important factor in the London University Divinity faculty. A Welsh and English Baptist Education Society began at Abergavenny, and now, after two migrations, works at Cardiff in connection with the University of Wales. Lancashire Independents began at Blackburn in 1816, transferring to Manchester in 1843, five years after their Midland brethren began at Birmingham the college now specialized for post-graduate work at Oxford, where it has been guided by Fairbairn and Selbie.

The Methodists had at first some prejudice against systematic study, as though it were inconsistent with the influence of the Spirit; not till 1834 did the Wesleys establish an institution at Hoxton, now represented at Richmond; three years later, the Welsh Calvinistic Methodists followed with a college at Bala, the Wesleys responded with Didsbury in 1842, the Calvinists keeping pace with Trevecca, now at Aberystwith. More recent foundations are at Headingley, Manchester, Shebbear, and Handsworth.

The Strict Baptist Society of 1844 deliberately reverted to the grant system, but after twenty years saw its mistake, and established a college now at Manchester. Also in 1844 the modern orthodox Presbyterians entered the field, their college now being at Cambridge. This awakened the Old Dissent; the Hibbert Trust of 1847 provided grants, while the Unitarian Home Mission Board of 1854 began work now housed in a college at Manchester. A demand for popular evangelical training caused Spurgeon to found the Pastors' College in 1856, and Paton's Theological Institute began at Nottingham five years later. The bicentenary of St. Bartholomew's Day brought about the North Wales Baptist College, now at Bangor. For the last fifty years the trend has been to consolidation and federation rather than to new foundations.

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**THEOLOGICAL EDUCATION, UNDENOMINATIONAL.**—The word "undenominational" in this connection may bear two meanings which are not infrequently confused. In the first place it may mean a type of theological education in which no

denomination is recognized as such or allowed to have a voice. In the second it means that all, or several, denominations are welcomed, and each allowed to make its own contribution.

It is in the second sense, and not in the first, that efforts have been made in the past and are being continued in the present to provide "undenominational theological education." The chief theological colleges in Great Britain to which this applies are Manchester College, Oxford; the Presbyterian College, Carmarthen; the Bala Theological College. In America, the Harvard Divinity School and the Union Theological Seminary of New York are pre-eminently undenominational. In none of these colleges are the students or teachers restricted to the members of one denomination only, though the number of denominations varies in different cases. Thus at Manchester College, Oxford, the undenominational, or rather interdenominational, principle is adopted without reservation, the teaching staff including members of the Unitarian, Presbyterian, and Anglican denominations. The Harvard Divinity School, the principle of which was always free though the professors were originally Unitarian, now admits teachers of all recognized churches. The Union Theological Seminary has members of five of the leading communions on its staff—viz., Presbyterian, Congregational, Episcopal, Methodist, and Baptist.

The distinction between the two meanings mentioned above is important in relation to the recognition given to the study of theology by the universities of London, Manchester and Wales. Here, too, the principle is undenominational in the sense that equal treatment is accorded to all denominations. These universities conduct theological examinations and appoint courses of study, but these are such that they can be taken, and the highest degrees obtained, without respect to the particular views of candidates on points of theology disputed among the denominations. In addition each university "affiliates" a certain number of theological colleges in the district on the same broad basis, the sole condition being that the teaching of the college is of a sufficiently high grade of scholarship. The Victoria University (Manchester) includes in its list of affiliations the Church of England, the Independents, the Wesleys, the Primitive Methodists, the Unitarians, and the Moravians. Baptists, Wesleyans, Congregationalists, and Anglicans are included in the same way by the University of London. In Wales any college in the Principality is eligible which has four teachers engaged upon subjects recognized by the University.

Another remarkable instance of the adoption of the same principle is afforded by the Protestant Churches of the Federation of Swiss Cantons. In 1874 the Church Constitution declared at Geneva that "any minister may preach and teach freely on his own responsibility, nor may this liberty be restricted either by confessions of faith or by liturgical formularies." The theological faculty of the University is free in the same sense. At a conference of Liberal Religious Thinkers held at Geneva in 1905, Professor Chantre, the head of the Faculty, spoke in praise of "a free and independent theology, with a method different from that of all orthodoxies, in which the search for truth was practised with the same sincerity as in history, science, philosophy." A similar form of statement is found in the appeal made as far

back as 1753 by the Rev. John Seddon for the establishment of Warrington Academy—the ancestor of the present Manchester College. The appeal was for an academy where ministers of religion “should be free to follow the dictates of their own judgments in their inquiries after truth without any undue bias imposed on their understanding.”

The type of procedure common, with variations in detail, to all these colleges may be illustrated by the practice of Manchester College. No subscription to any creed, or profession of any particular form of theology, is required either from the professors or from the students entering the college. Having produced sufficient evidence of moral character and intellectual ability, the student is merely required to state his *bona fide* intention to enter the ministry of religion at the completion of his college course without mentioning the denomination in which he intends to serve; and since the foundation of the College in 1786, no instance is on record of any student being visited with censure on account of his theological opinions or of his preference for one denomination. By a process of natural development, to which all free theological schools are more or less subject, the general trend of opinion in this institution has been towards the broader forms of Christian Theism; but students have frequently gone forth from the College to take their place in the ministry of the established or other orthodox churches.

**Political Origin.** The origin of the undenominational principle in theological education is partly political and partly religious. Politically it must be connected with the Act of Uniformity in 1662. By this Act, not only were preachers who declined to adopt the *Book of Common Prayer* disqualified for further office in the Church, but the same disqualification was extended to all teachers of youth. The entire education of the country thus threatened to fall into the hands of the Church party, and the Puritans were excluded from every seat of learning. Among the men thus excluded were many of the best scholars in the country, men with an ardent zeal for education. The immediate result was that not a few of these learned Puritans proceeded to open private academies of their own, the object of which was to provide the equivalent of that university education from which their party had been excluded. Inasmuch, however, as these men were almost invariably ministers of religion and theologians, it was inevitable that theology should occupy a large space in their teaching, and thus from the first a considerable proportion of the students who gathered round them were candidates for the ministry, usually, but not always, in the Nonconformist Churches. The most famous of these early academies was that of Richard Frankland, who had been driven from the living of Bishop Auckland. Frankland established his school in 1670 at Rathmell, near Settle, in Yorkshire. This academy endured for twenty-eight years, in the course of which it turned out over 300 students, including many of the most learned laymen and ministers of the next generation. Frankland himself was a Presbyterian and a Calvinist, but his school was open on equal terms to others, and for some time all his students were Independents. In this academy, kept by a Presbyterian who refused to impose any test on his students, and frequented by Independents, may

be detected the germ of Undenominational Theological Education. Links can be found which connect Frankland's Academy with the later Warrington Academy and its successor. (See NONCONFORMIST ACADEMIES.)

But while Independents and Presbyterians were at one in demanding liberty of conscience, as against the conditions laid down by the Act of Uniformity, the reasons which actuated the two parties in this demand coincided only to a partial extent. Both parties agreed in regarding the State as an incompetent authority for deciding theological controversy, and equally denied its right to select one particular group of theological propositions as the object of belief. This agreement as to the incompetence of the State to make the selection still left the possibility open that the selection could be made otherwise, and that there might be, in fact, one sect and one only, whose opinions were sound and true. That such an absolute norm of Christian belief existed was the opinion of the Independents, who, while willing that other sects should be their *civic* equals, held themselves entitled to regard those who differed from them as aliens from God. This was the point at which English Presbyterianism diverged from Independency. To the political reason, in which the Presbyterians were at one with the Independents, the former party added another reason, of a religious nature, for their assertion of the principle of “free teaching and free learning” in theology. Under the leadership of Richard Baxter (1615–1691), they held that the attempt “to limit the truth of Christ” to any particular form of dogmatic statement was a procedure opposed to the spirit of Christianity. It was Baxter's opinion that Christ had left the door open to divergencies of thought. “He is the Good Shepherd,” said Baxter, “and I will not close any door which he has left open.” To enforce conformity was “to narrow the Church more than Christ himself alloweth us” and “to rob him of his flock.” According to the Presbyterians, says Martineau (see Reference *infra*), “the fruits of the spirit were by no means proportioned, in their ripeness and abundance, to the fullness and precision of the theoretic creed. Opening their hearts to these obvious facts, they had gained the conception of a religion deeper than theology, and varying by other laws than those of intellectual apprehension and definition.”

**The Presbyterian Tradition.** This Presbyterian tradition, according to which any dogmatic limitation of Christianity is itself unchristian, lies at the root of the system of undenominational theological education, as it is carried on to-day, whether in the Union Theological Seminary of New York, or in Manchester College, Oxford, both of which institutions have a Presbyterian origin. In the history of the undenominational principle, the religious objection to the dogmatism of creeds has played a part equal to, if not greater than, the political objection to the authority of the State as the exponent of theological orthodoxy, in which all Nonconformists are agreed. This is seen by the circumstance that, whereas many theological colleges supported by Nonconformists still retain a denominational basis, it is only those that inherit, or at least have been influenced by, the Presbyterian tradition, in which the undenominational principle prevails. This goes far to explain the fact that at the present day many supporters of undenominationalism in theological

teaching are to be found in the community of churches commonly, but incorrectly, known as "Unitarian." These so-called "Unitarian" churches were originally, in many instances, Presbyterian foundations, and adopted from the first the same freedom from dogmatic tests which was subsequently introduced into theological education. If in certain instances Unitarian opinions are found to prevail, for the time being, in these churches and the colleges which they support, this merely serves to mark the present phase of their development, and neither involves an exclusive attitude towards the other denominations nor prevents further developments in the future.

At the present time the advocates of the undenominational principle in theological education support their position by many arguments which were hardly felt by its first originators. In particular the progress of science since the seventeenth century has suggested the need of allowing to theology the same freedom of research which is accorded without question in the pursuit of secular knowledge. Whether theology can be so treated is, of course, a subject of debate among theologians; the one party contending that theological knowledge is of a kind which can only be validated by some form of external authority, such as that represented by an infallible Church or by infallible scriptures; the other party replying that theology is precisely that form of knowledge in which the attempt to secure finality and to enforce it either in teaching or learning is most dangerous. This latter is the contention of the undenominationalists. According to these, the conditions of harmony with God do not rest upon the understanding that frames the doctrines of the creeds, but upon the affections and the will, which issue from a moral nature common to all men, and may leave them in identical relations with God amid great differences of judgment among themselves. This opinion defines the undenominational attitude towards theological education, which is summed up in the following words of Martineau: "all knowledge good; all conscience free; no restrictions to be put on either under the plea of religion, or for the sake of a superfluous uniformity of theological conception."

L. P. J.

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**THEORY AND PRACTICE.**—In the evolution of human activity practice has always and of necessity preceded theory. The imperative demands of life compelled action, and, by happy or unhappy results, men learnt what kind of action to adopt, and what to avoid, when the circumstances were repeated. Hence, in every department of human activity, gradually arose empirical rules, adequate to unchanged circumstances but ill adapted to meet new calls. Practical needs, then, called for better founded rules. The call could be satisfied only by such analysis of events as would lay bare what in them was conducive to the result sought, what was antagonistic to it, and what was indifferent. These results could then be generalized and offered as rules for practice. Here was the birth of science or systematized theory. Beginning in crudest empiricism, as an increasingly clear vision is attained of what is always connected with a certain result and of what in the total complex of the complete event may from that point of view be

disregarded, the matter dealt with by thought becomes more and more abstract, and so further and further removed from the world of everyday experience. Then the practical demand for guidance of action, from which the march of science set out, is apt to sink out of the view of the speculative thinker. Absorbed in hypothetical abstractions, he constructs a world of what to him are ultimate realities, but which to the man engaged in the actual struggle of life seem but shadows.

This is only one side of the process. While the few thinkers have been pushing their researches ever deeper into the hidden meaning of things, the many have had to continue to do the practical work of the world. As the results of scientific investigation become more abstract, they bear less directly on actual practice, and it is increasingly difficult to see their indirect bearing. For all action has to deal with the concrete wholes of things and events given us in unanalysed direct experience. But the abstractions of science neglect the very elements that make those things and events just what they are, and so distinguish them from others. So the abstraction never exactly fits the concrete case, and the difficulty of seeing what modifications are needed to make it available at all in throwing light on the practical problem becomes increasingly greater.

**Reconciliation of the Apparent Opposition.** The divorce between the theoretical and the practical attitudes of mind is thus natural, even if not altogether inevitable. The former seeks to extend the bounds of truth; the latter to arrive at practical ends. So the theorist may make a very bad man of affairs, and the practical man may do much of his work with no clear perception of why he succeeds or fails, and with little power of so relating his efforts that they supplement each other. The unpractical character of many of the proposals for the conduct of education that have been made by theorists illustrates the one result, while no one familiar with the work of schools and universities will be at a loss to find examples of the other.

Yet the opposition is not between theory and practice in themselves, but only between the people who give themselves unreservedly to the one or the other, and is a simple consequence of the limitation of human powers. Theory is true only when it grows out of the facts it transforms in generalizing them. So all science which aims only at truth is anchored in fact. Though men may pursue "knowledge for its own sake" it is knowledge of reality that they seek, for there can be no other. On the other hand, it is involved in the very idea of practice that it is action intended to attain some end, and all improvement in practice is more perfect adaptation of means to end. Thus all practice implies rules of action, and unexamined practice is apt to embody incompatible rules at different times. For unexamined practice means that the involved principles are not brought to light and compared. As soon as this is done, explicit theory appears.

Without theory, then, practice is mechanical and blind; without practice theory is unreal. Between the pure scientist and the mechanical operative is needed the intermediate link of the thinker, whose aim is to take the truths established by sciences cognate to the practical work in question and to indicate modes in which they may be applied. This is the essential end to be sought in training teachers.

J. WELTON.



**THEOSOPHICAL EDUCATIONAL TRUST** (in Great Britain and Ireland), LIMITED, THE.—This was formed in 1916 to establish and maintain, in Great Britain, experimental schools. The aim is to form miniature communities with the boys and girls as co-citizens, learning self-discipline, first by the Montessori method, and then by assuming gradually partial government of the school, with the teachers as elders and guides. The practical side of education, although a prominent factor, is yet not allowed to interfere with the cultural side, and the standard of work in all directions is maintained at a high level of efficiency. Each child is studied as an individual, and is given full opportunity to develop any special talent, as well as freedom to grow according to the laws of his own being. Freedom for the individual is, however, carefully distinguished from license. Every effort is made to influence each child to gain self-control—physically, emotionally, and mentally. Autocratic rule and arbitrary punishments are avoided: corporal punishment is never inflicted in any circumstances. Cramming is abolished, as are also the usual set examinations; for these, voluntary tests are substituted, until the matriculation stage is reached. Much more individual work is done than in most schools; the time-tables are more elastic and allow full scope for individual requirements. Science is taught by carefully-chosen people, in order that the materialistic tendency so often found should be absent. Character training is one of the chief aims of the Theosophical Educational Trust policy, but it is largely incidental. Co-operation replaces competition, and no marks or prizes are used as stimuli to study. Civics and sociology are taught practically, and service to the community is held up as the highest ideal of life. Religious teaching is based on Christianity, but it is entirely non-sectarian.

The schools belonging to the Theosophical Educational Trust are six in number: three at Letchworth, one in Derbyshire, and two in Scotland. All are co-educational, and in each school the numbers are restricted so that the pupils may be known individually by the Principals.

**St. Christopher School** (LETCHWORTH GARDEN CITY). This school was opened in 1920 and has accommodation for 160 pupils. Whilst being fully equipped with well-arranged classrooms, Science laboratory, Arts and Crafts workshop, Domestic Craft room, and a Montessori Department, it is specially designed and built to provide as much verandah space as possible for open-air classes. Education is carried out from the Montessori Department to the standard of matriculation.

**Arundale School** (LETCHWORTH GARDEN CITY). Originally the first school opened by the Trust, it is now used as a commodious school hostel. The house stands in the midst of 10 acres of ground and accommodates about 60 boarders. Scholastic instruction is taken at St. Christopher.

The Theosophical Educational Trust aim to establish an Educational Community at Letchworth which shall be self-supporting. It is hoped ultimately to found a co-operative scheme which will include a dairy farm, a poultry farm, orchards, market gardens, a first-class up-to-date laundry, a weaving centre, and a Craft shop. The elder pupils will thus be offered great educational advantages in the study of arts and crafts or of training in scientific agriculture.

**Brackenhill Home School** (LETCHWORTH GARDEN CITY). Established in 1917 for children who are

suffering from disabilities of health or home. Children are admitted from 2½ years of age, and are cared for and educated until 16. They are given a thoroughly sound education on the most modern lines and are carefully prepared for their life's work according to their special capabilities. The younger ones are taught in a fully-equipped Montessori Department, and the spirit of the Montessori method is carried out right through the whole school; the elder children attend St. Christopher School daily. At present, 26 children find a home at Brackenhill. As it has no endowment, Brackenhill Home School is dependent upon voluntary contributions.

**The Home School** (GRINDLEFORD, DERBYSHIRE). A preparatory school (recognized by the Board of Education) for boys and girls. The building was specially designed for a school, and is quite modern and admirably adapted for open-air classes. Surrounding the house are nearly 9 acres of land available for games and for experimental gardening. An open-air swimming bath, 50 ft. long, fed by a natural spring, is close to the house. The school can accommodate 50 boarders and from 20 to 30 day-pupils.

**King Arthur School** (DRUNMORE HOUSE, MUSSELBURGH, MIDLOTHIAN). The house (originally a fine Adam mansion now enlarged for school use by the addition of a well-equipped gymnasium and a series of classrooms with south verandahs for open-air classes) stands high, in 24 acres of beautiful grounds, overlooking the Firth of Forth, and sheltered by magnificent trees. The aim of the school is to lose nothing of the real strength of the orthodox scholastic training, but to add thereto a greater stimulus to originality of thought and feeling, with a wider interest in Nature and humanity. A special feature of the school is the dramatic performances given by the pupils, and these reach a high standard of excellence.

**Moray School** (STRATHBUNGO, GLASGOW). Another Day School owned by the Theosophical Educational Trust, and run on the new ideals in the principles of education.

**THICKESSE, GEORGE** (1714–1790).—He was appointed chaplain of St. Paul's School, London, in 1737. In 1745 he became surmaster, and in 1748 highmaster. The school had been declining, but flourished under the rule of Thickesse. One of his famous pupils was Philip Francis, the supposed author of the "Letters of Junius." In 1759 he began to suffer from mental derangement, and retired in 1769, being pensioned by the governors of the school and requested to name his successor.

**THOMISTIC PHILOSOPHY.**—(See SCHOLASTICISM.)

**THRIFT AND EDUCATION.**—It has been said that "whatever we want to see introduced into the life of a nation must first be introduced through its schools," and few will be found to deny that the teaching of thrift, using the word in its best and widest sense, should take a high place among the subjects to be included in any sound scheme of national education.

It is with amazement and often with incredulity that the statement is usually received that in our schools to-day no systematic teaching of thrift exists. But so it is. The elaborate code and



overloaded curriculum make no provision for this fundamental need. It is left to individual teachers to introduce the subject or not, as they please—incidentally and on their own initiative—and it may almost be said at their peril, because it counts for nothing in the examinations or in the grant-earning capacities of a school that a teacher may have successfully instituted a "Penny Bank" among the children.

The Great War changed the national outlook in education as well as in most other matters, and we may confidently expect soon to see an attempt made to remedy this great short-coming in our educational system by the introduction of some definite and systematic teaching of this vital subject. It is earnestly to be hoped that the authorities on whom will lie the responsibility for formulating the change, will not introduce it in the shape of yet one more separate "subject." If the teaching of thrift is to be more than a shallow scratching of the surface, if it is to have real educational force such as will permeate national life, and influence and alter national habits, it must be inculcated in a totally different way to that in which most other lessons are now taught.

It will no doubt be thought advisable, in view of past neglect and present necessity, to give the subject very special prominence, and this may easily be done without either unduly overweighing it or the curriculum if the methods suggested in an admirable booklet called *Notes of Lessons on Thrift*, issued by the Scottish Teachers' War Committee of Edinburgh, are adopted. Thrift-teaching in schools (and indeed all teaching) should arouse and secure the real interest of the children. To do this successfully it must illustrate the principles it seeks to teach by reference to as many departments of the pupils' general knowledge as possible, and practically no department will be found to which this method cannot be applied. Thus English literature yields many apt quotations: History gives the topic of War Taxation (*e.g.* the Danegeld, the Poll Tax, the loss of the American colonies); geography at once suggests imports and exports; arithmetic furnishes endless possibilities of working out sums dealing with national expenditure and revenue; while the immensely important ethical side of the subject can be linked with moral lessons in temperance, generosity, justice and so on. If the pupils are thus taught to regard the quality of thriftiness as something much more than a means of increasing their material prosperity, there is no doubt that the educational value of such teaching will be very great, and it should prove an important factor in helping to bring about the revival of true learning in our schools.

J. C. C.

**THRING, EDWARD.**—Head Master of Uppingham School from 1853 to 1886, was born at Alford, Somersetshire, in 1821. When 8 years old he was sent to a private school at Ilminster, and at the age of 11 entered Eton, where he remained nine years, becoming Captain of Collegers. From Eton he went in 1841 as a scholar to King's College, Cambridge, of which he became a Fellow. He was ordained in 1846, and in connection with clerical duties taught in the National Schools of St. James's Parish, Gloucester, where he was curate. In 1853 he was appointed head master of Uppingham, and began a work which has had a marked influence on educational thought and

practice, not only in England, but throughout the English-speaking world.

**Work at Uppingham.** Although hampered by lack of means and by the indifference of his governing body he soon achieved a striking external success. His vigorous personality and inspiring ideals attracted to his support fellow-workers who shared with him the risks involved in constructing a new school on the small Elizabethan foundation. Within fifteen years Uppingham had reached the limits of expansion that he considered consistent with the best work, and had gained a secure place among the greater public schools of England.

An episode in the school history illustrates the boldness of his leadership. On the outbreak of a dangerous epidemic due to neglected drainage in the town, he removed at a few days notice the whole school, consisting of more than 300 boys and forty masters with their families, to the coast of Wales, and maintained it there for fourteen months, at the end of that time returning, with increased numbers, to Uppingham, now purified.

**Educational Principles.** Thring's ideas of educational reform centred around a few main principles. Foremost among these he placed the duty of any school doing honest work to give to each boy, whether stupid or clever, training suited to his capacity.

Acceptance of this primary duty imposed, in his opinion, a strict limit on the size of classes, on the number of boarders in a house, on the numbers in a school itself, on the proportion of masters to pupils; determined, indeed, the whole school organization. It implied house construction of a kind that broke down the barrack system and secured for each boy personal attention and some degree of individual privacy. Till Thring set the example, the gymnasium, the workshop, even the swimming bath, were practically unknown in English public schools. The same was true of music, to which he assigned an honoured and important place in his school system, and by securing first-rate teachers made the subject a really elevating influence.

To give "Honour to Lessons" was a part of his school creed, and for this he found expression in substituting artistic wall decoration and the best photographic illustration of the subjects taught for the sordid surroundings of the ordinary classroom. "Nothing," he said, "is too good to give to boys."

He held strongly that religion must form the basis of all highest educational work. His religious teaching in school found a practical application to social service of no slight significance. Under his guidance Uppingham was the first public school to interest itself in mission work in the east end of London, and he thus inaugurated a movement which has since been taken up by most of the great schools and the universities.

He opposed, as fatal to true work and to the independence of the teacher, detailed regulation and rigid examination tests imposed by external authority.

The Headmaster's Conference first met at his invitation at Uppingham in 1868. It has, through a long series of years, fully justified his forecast of its usefulness.

But, however important his influence was in directions such as those mentioned, on educational thought and practice, the mainspring of all he did lay in one governing motive, which has been well

expressed by one of his fellow-workers. "He was one to whom the most insignificant, unattractive boy was as precious as the most brilliant, who regarded the most troublesome characters as God's stray sheep to be brought back into the fold of God's Grace." G. R. P.

**TILLICH'S BRICKS.**—Employed by Johannes Tillich (1780-1807), a German teacher, who followed Pestalozzi's methods and advocated the use of visible and concrete demonstration in the teaching of arithmetic. Amongst other books on practical teaching, he published his *Lehrbuch des Arithmetik* in 1806, in which he describes the "bricks" he had invented. They consisted of a series of rectangular, simple solids of graduated sizes, which could be combined for the purpose of teaching elementary arithmetical relations.

**TILLOTSON, ARCHBISHOP** (1630-1694).—This famous Archbishop of Canterbury (1691-1694) is chiefly notable in the records of English education for his efforts to undo the educational evils wrought by the Nonconformist legislation of 1662-65. He and Richard Baxter, the great nonconforming divine, worked together to secure better educational conditions. In 1674, they drew up what was called a "Healing Act" on quite modern lines for a union between Conformists and Nonconformists and proposed freedom for Dissenters, under certain circumstances, to become schoolmasters. The leading Nonconformists confirmed the agreement—a great tribute to Baxter—but the treaty was rejected by the Bishops with disastrous results to English education. The Conformists, in fact, later obtained freedom through various legal decisions with respect to new educational endowments, but the freedom came too late. Tillotson was also concerned with the famous educational trust formed at mid-summer, 1674. It formed schools and distributed religious literature in Wales. The report dated Lady Day, 1675, was signed by many Nonconformists as well as Churchmen, including Tillotson. He contributed £50 towards the printing of the Welsh Bible which was published in 1677. It seems probable that Tillotson's efforts played some part in the important school movement in Wales, started by Thomas Gouge in 1674. At the date of the above report there were 1,850 children in these schools.

J. E. G. DE M.

**TIME-TABLE.**—(See MANAGEMENT, SCHOOL.)

**TIME, THE PERCEPTION OF.**—The idea of time is the concept of an even flow, at an absolute rate, in an irreversible direction within which events stand to one another in a relation of before and after. Time is a one-dimensional continuity, purely quantitative and measurable, with no sensible quality belonging to it.

The idea of time is independent of the idea of space, but time is only measurable by means of space: there is no purely temporal measure of the time flow. Thus we can only represent the series of succession of moments by the spatial figure of a line.

Most theories of the origin of the notion of time regard it as analogous to the notion of space, and the arguments applicable to space are considered to be equally applicable to time.

**Theories of the Philosophers.** In the transcendental theory of Kant, time is a form of sense

perception, an *a priori* condition of experience. It is the form of inner sense experience, a mould or frame in which the mind receives the manifold of its psychical states and dispositions, analogous to space, the form in which the mind receives the manifold of external sense experience.

In the philosophy of Bergson, time is more fundamental than space; it is, in a sense, the reality of the universe. But time so conceived is not the abstract time of mathematics and physics, it is "real duration" and characterizes life. Time in this sense is the real stuff of life, while the time of mathematics is a spatialized time, a simple dimension which can only be represented by a spatial figure. Real duration is not a succession of moments continually perishing and continually coming into existence. It is a preservation of the past in present activity, a present which grows with the past. Life is not something indifferent to time, and time does not flow past it or over it. Life endures in continuous change, its present carrying the past and forming the future. Life in its immediacy is real duration, and the mathematical notion of time as a spatialized dimension is a mental view of it.

**The Specious Present.** The span of time which we actually perceive in experience is named the specious present. It is distinguished by its duration from the mathematical concept of a point dividing the past from the future. The duration of the specious present has been measured and found to correspond with a period of clock time varying from 3 or 4 to 12 seconds. (James.) It has a vaguely vanishing forward and backward fringe, but it varies little and is probably specific for different living creatures.

Many experiments have been made to determine the time-sense. Almost all have been made with strokes of sound. The sense of hearing has much greater power of discrimination for the time interval than the sense of sight. Some experiments of Wundt and Dietze, quoted by William James in *Principles of Psychology*, show that as small an interval as  $\frac{1}{100}$ th of a second can be recognized by hearing, whereas nothing lower than  $\frac{1}{10}$ th of a second can be recognized by sight. H. W. C.

**TOBLER, JOHN GEORGE** (1769-1843).—Was a follower of Pestalozzi's methods, with whom he worked for several years. He was educated at Basel, and there and at Mulhausen he opened schools in which he taught, applying Pestalozzi's principles to the teaching of elementary subjects.

**TOLSTOI FROM AN EDUCATIONAL POINT OF VIEW.**—Count Tolstoi awakened a lively interest in his personality throughout the civilized world. Hardly anyone doubts his extraordinary power as a writer of fiction. But from the standpoint of his conception of life, and, accordingly, of education, it is quite the reverse. In this respect the views on Tolstoi prevailing in Russia differ so much that some people (a rapidly diminishing number), regard him as an inspired prophet, whose teachings are destined to save the human race; others see in him the most implacable enemy of Christianity; others again are ready to consider him a slave of ideas not his own, a person who did not give a clear account of the essence of his preaching.

All his life Tolstoi aspired to be an educator. In 1849 (*i.e.* when about twenty years old) he

had already begun to engage in educational matters, having established on his estate (*Yassnaia Poliana*) an elementary school in which, as he himself confesses, he desired to acquire educational experience by working unaided.

Subsequently Tolstoi imparted his ideas to those interested in matters of education both through the *Yassnaia Poliana*, a journal he published, and in various articles. He availed himself of every opportunity to exert his influence, upon the proper authorities, with a view to insuring the success of his ideas on public education, expressing on such occasions extremely radical views on the duty of the State.

In a published letter, addressed to the brother of the then Secretary for Public Education (E. P. Kovalevski), Tolstoi wrote (1860): "The most immediate need of the Russian people is Public Education. This education is *wanting*. It has not been started and it will never be started, if the Government is left in charge of it."

In a subsequent letter in 1903 he thus formulates his view: "The essence of educating children consists in educating oneself." Tolstoi all his life remained true to his aspiration to be an educator not only of children, but also of entire generations.

**Tolstoi and Christianity.** He was ever in quest of self-education. It is to be regretted, however, that the history of his self-education was that of the decline of a Christian spirit. He thought that he was supporting the idea of a Christian education and hence that he remained a Christian in spirit, yet he was at every step a preacher of anti-Christianity. (Thus in his *Reflections on Education*, Tolstoi says: "Let us but give them (*i.e.* children) as much Christian liberty and enlightenment, of course, as possible.") It must be acknowledged that Tolstoi's anti-Christian tendency manifests itself not only in his later and weaker productions of fiction, but also in the earlier works, that have gained him well-merited fame (*e.g.* his historical novel *War and Peace*). In the concluding part of the latter, Tolstoi endeavours to shake the Christian belief in the existence of free-will and to force upon the reader the consciousness of a necessity to submit to the force of surrounding circumstances. He says, for instance, that one should "give up the freedom that is non-existent, and acknowledge the necessity of which one is not conscious."

At the same time, in a whole series of educational essays, Tolstoi, in harmony with the Gospels, speaks of the natural purity of a child's soul, and perceives in people untouched as yet by education, a clear consciousness of Christian duty.

In his essay *Religion and Morality* (1894), we find an acknowledgment that, in contrast to many an educated person, "The Russian half-illiterate peasant... without the least effort of his mind, acknowledges the Sense of Life in that he feels conscious of his being an instrument of God's Will."

In the depth of his soul Tolstoi undoubtedly remained a Christian, but, evidently, in his thirst for worldly fame, he appeared, wherever he could, as a preacher of anti-Christianity and a reviler of the Christian church.

Unfortunately he was eager to be an anti-Christian educator and hence he wrote, among other things, such a blasphemous essay as *In what is my Faith* for the benefit of adults, and for children, that saddest production of a creative mind *Christ's Teaching told for Children*.

In his *In what is my Faith*, Tolstoi asserts contrary to truth (Matt. xxiii, 23), but to support his own doctrine of non-resistance to evil, that Christ forbade all anger (not only unprovoked anger), and that man's justice is opposed to Gospel teachings. This, however, did not prevent Tolstoi from writing the drama *The Power of Ignorance* (1886), in which a criminal (Nikita) conscious of his guilt, finds satisfaction, after a desperate attempt at suicide, in giving himself up into the hands of justice after he has just publicly confessed his sin, and by so doing melts the heart of his rather simple but pious father (Akim).

On the other hand, Tolstoi, in his educational essays, cites more than once, by way of exhortation, the evangelical saying in Matt. xviii, 3; but, in *Christ's Teaching told for Children*, published towards the close of his life, he is misleading at every step.

**Tolstoi's Influence as a Teacher.** In an essay, speaking of his scholastic activity, he declares: "I venture to consider myself a good teacher." Life has, of course, not corroborated this at all. Both in his elementary school and in his essays on education, Tolstoi's principle was to let every one teach and learn as he likes. Tolstoi, without giving himself a clear account of what he was doing, arrived at a denial of the foundations of Christianity and at the propagation of Anarchism. At the same time, in spite of his attempts to establish new principles of social life by exhorting man to simplify it in every way, in spite of his admitting as having primary importance the denial of the right to make use of a man's compulsory labour" (as he said at the close of his life), Tolstoi, confessedly, still *lived in luxury*. It is not to be wondered at then that his own elementary school failed to produce any positive results, and his sermonizing, only gave rise to colonies of the so-called "Followers of Tolstoi" (Tolstovtsi) that searched after a new way of life, and remained as inconsistent as the preacher himself.

In short, one must acknowledge that, from an educational point of view, Tolstoi's influence was in the wrong direction.

He may be said to have been a slave to impressions since he could not resist outward influences which he acknowledged, led him to "an activity, clamorous and hence shallow and doubtful in effect" (*Reflections on Education*).

Tolstoi's inner world may be likened to a sensitive photographic film which faithfully reflected everything about it. This aided Tolstoi in his work in fiction, but rendered him quite helpless in working out a definite conception of life. That is why, being a Christian in spirit, he was gradually, as time went on, and under the influence of the unbelief all around him, becoming a more and more passionate preacher of anti-Christianity.

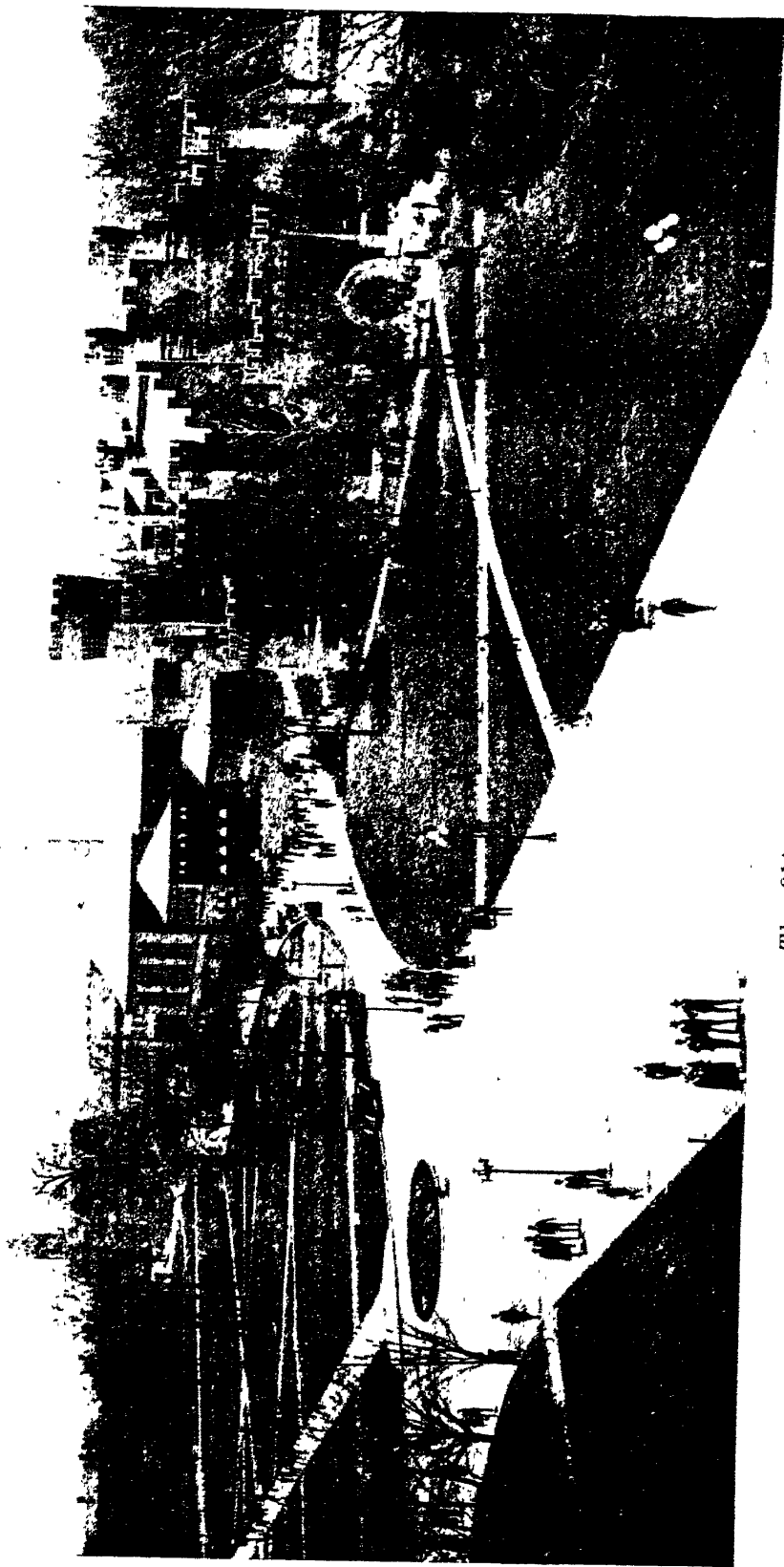
The same explanation applies to the tragedy of his death. Having fled from his home, from his sinful life, filled with a thirst for repentance, he died without the benediction of the church, and without Christian interment. A. T.

#### Reference—

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**TOMSK, THE UNIVERSITY OF.**—(See RUSSIAN UNIVERSITIES.)

**TONBRIDGE SCHOOL.**—In 1553, Sir Andrew Judd, who had been Lord Mayor of London in 1550,



*The Ohio State University*

PLATE XC



and Lord Deputy and Mayor of the Staple of Calais, obtained letters patent from King Edward VI for the erection of a grammar school at Tonbridge. He endowed it with estates in London which have since increased in value so much that the revenue of the school now is nearly £6,000 a year. The foundation is governed by the Master, Wardens, and Court of Assistants of the Worshipful Company of Skinners. Handsome new buildings were erected in 1865, and many additions have since been made; in 1902 a new school chapel was consecrated by the Archbishop of Canterbury. There are separate laboratories for chemistry, physics, mechanics, biology, and engineering; in the workshops well-organized courses of practical work are conducted, including carpentry, turning, pattern-making, moulding, fitting, forging, and tool-construction, and there is a complete electric light installation with steam-engines, dynamos, and accumulators, arranged for teaching purposes.

The scheme was remodelled in 1880, and the school is now divided into classical, modern, and scientific sides, together with separate engineering, medical, and army classes; there is a re-grouping for mathematics. There are about 40 masters and 450 boys; of the latter over 300 are boarders, accommodated in seven houses; the small boys of the preparatory school have separate quarters and a separate existence at Yardley Court. The sons of residents within 10 miles of Tonbridge are admitted as "foundationers" in deference to the original scheme which established Tonbridge as a grammar school, and they enjoy a reduction of £10 in the tuition fees.

So wealthy a corporation can afford to offer exceptionally valuable scholarships. There are five leaving exhibitions awarded every year: four of £75 each and one of £90; these are tenable for four years—one year longer than usual. A competitive examination for entrance scholarships takes place every June, when two of £100, two of £80, and one of £40, besides six foundation scholarships exempting the holders from tuition fees, are awarded. There are many other scholarships and prizes.

The cricket and football fields are large and well kept; there are ten fives courts and two squash racquet courts, besides the Dale Racquet Court, a memorial of an O.T. The cadets compose a corps of Volunteer Engineers, and own an armoury and a Morris tube range. There are a good gymnasium and swimming-bath, and the school has a boat-house on the Medway.

Among distinguished O.T.'s was Sir Sidney Smith, the gallant defender of Acre.

**TONIC SOL-FA COLLEGE, THE** (26 Bloomsbury Square, London, W.C.1).—The Tonic Sol-fa College was incorporated in 1875, to expand the work of the Tonic Sol-fa School, and with the object of assisting those who wished to go on to higher studies in music. The College defines the term "Tonic Sol-fa" as "the method of teaching musical subjects which is set forth in the publications of John Curwen, and such developments of the same method as may, after the death of Mr. Curwen, be adopted by special resolution at an extraordinary meeting of members." The object of the College is carried out by the training of teachers of the Tonic Sol-fa method, by the extension of musical knowledge among the people by the Tonic Sol-fa method, and by the holding of

examinations and the awarding of certificates, diplomas, and scholarships.

Membership of the College is obtained by passing the examination for membership under the "alternative scheme," or the candidate must hold the three following certificates: (i) intermediate, (ii) elementary theory, and (iii) intermediate theory, or *one* of the following: School teacher's music certificate, matriculation certificate, advanced certificate, Associateship, Licentiate, Fellowship. The membership fee is £1 for all except holders of diplomas.

An Associate of the College (A.T.C.S.) has passed the Associateship examination under the alternative scheme, or holds the matriculation and matriculation theory certificates. The fee is £2, of which any previously paid membership fee is reckoned as part payment.

A Licentiate of the College (L.T.S.C.) is one who has passed the Licentiate examination under the alternative scheme, or who holds the advanced and the advanced theory certificates. The fee is £3 with a reduction of any previously paid fee for membership or associateship.

A Fellow of the College (F.T.S.C.) is a Licentiate who has passed the Fellowship examination under the alternative scheme, or who holds certificates in counterpoint, 2nd stage; music composition, 4th stage; and orchestration, or solo-singing, or pianoforte playing, or organ playing. The fee is £5, reduced by previous payment of membership or diploma fees.

A Licentiate who holds a degree of Bachelor or Doctor of Music of a British university is admitted to the Fellowship without examination.

**TONIC SOL-FA SYSTEM, THE.**—The Tonic Sol-fa system is a scheme designed to present and teach, in a natural and orderly manner, the material of the art of music. It is claimed by its most experienced apostles that its principles can be applied usefully not only to elementary musical study, but also to the most advanced tonal and rhythmical problems.

The Tonic Sol-fa notation and the method of unfolding musical facts with which it is allied (together described as the System) are in this explanatory article considered separately.

**The Notation.** The notation, on its tonal side, is based upon a practice of associating monosyllables with the degrees of the musical scale that has been in use in Europe since the eleventh century. In that distant period, Guido, an Italian monk, chose (adventitiously), for educational singing purposes, the syllables UT RE MI FA SOL LA (SI being subsequently added), from which those in use all over the world to-day are directly derived. Other syllabic systems have from time to time been advocated, but the Guidonian syllables, with only slight modification throughout the ages, have held the field.

**Psychological Data.** We now consider the chief acoustical and psychological data that form the subject-matter of the system. Musical sounds may be regarded—

1. As points in the whole range of pitch. These points are referred to as the *Absolute Pitch* of a sound, and they are named by the first seven letters of the alphabet (A, B, C, D, E, F, G), or shown by *Notes* placed upon a Staff of lines (the *Staff Notation*).

2. As distances, reckoned by the number of steps from one sound to another in the range, or ladder,

of pitches selected for musical use. These distances are referred to as *Intervals* (as 2nd, 3rd, 4th, etc.). Each interval has a characteristic effect.

3. As a group, each member of which is felt to be related to all the other members. When all the members of the group are arranged in order of acuteness, they form the *Musical Scale*. The "scale" is independent of absolute pitch (*i.e.* its effect is the same whether it uses high or low pitches). A tune, so far as tonal relations are concerned, is simply a particular order of the degrees of the scale; its identity is preserved whether high or low pitches are used, so long as its interval relations are constant.

In this wholly subjective aspect of tonal relations, each single member of the group acquires a *mental effect*, which, in a mysterious way, is the sum of its interval relations to *all* the other members of the group, and which is distinct from any *one* interval effect, or from the particular interval by which in a tune it may be preceded; and one of its members, distinguished as the *Tonic* or *Key Note*, seems to the mind to be a point of maximum repose. The experience that the Sol-fa syllables can be easily associated with these mental effects is the chief foundation of the Tonic Sol-fa method, and all other "Movable Doh" methods. By it, sight-singing and the conception of sounds from names or signs are made independent of interval observation; a priceless gain for the young, and for the great mass of humanity, who cannot give much time to musical study. The limitations of the applicability of this associative power of the mind cannot be dealt with here.

It must be noted that no isolated pitch has any musical sense. Musical significance arises only when one pitch is contrasted or associated with another. A rose is a rose, no matter by what other flowers it is surrounded. But any one sound in music may be, as it were, a rose, a dahlia, or a hollyhock in turn, just as its surroundings are varied. It is this great and significant psychological fact that dwarfs the importance of pitch as a study and emphasizes the outstanding importance of *Relation*.

The Tonic Sol-fa notation (so called because the syllables are used to show relations to the Tonic), in the first place, proclaims relation, and leaves pitch to be discovered, if wanted; the Staff notation proclaims pitch, and leaves relation to be discovered.

The Tonic Sol-fa method, and other similar methods based upon the use of Sol-fa syllables [movable doh method], are also ways of discovering relations from pitch data, as shown in the Staff notation.

All who advocate the use of the Sol-fa syllables, or any method, do so on the ground that they believe them to be ancillary to the understanding of the Staff notation. Tonic Solfaists claim to have made many thousands of readers from the Staff notation, but they also claim an independent utility for their own notation.

#### Acoustical Data.

**THE SCALE.** The Degrees of the Scale are noted by their initial letters of the Sol-fa syllables.

DOH<sup>1</sup>      A middle or unmarked  
TE      octave is shown thus—

LAH  
.  
SOH  
.

*l*  
*f*  
*m*  
*r*

FAH  
ME  
.  
RAY  
.  
DOH

*d*  
Higher and lower octaves are shown by *Octave marks* placed at the right of the letters, thus—

High Octave.	Lower Octave.
<i>t</i> <sup>1</sup>	<i>t</i> <sub>1</sub>
<i>l</i> <sup>1</sup>	<i>l</i> <sub>1</sub>
<i>s</i> <sup>1</sup>	<i>s</i> <sub>1</sub>
<i>f</i> <sup>1</sup>	<i>f</i> <sub>1</sub>
<i>m</i> <sup>1</sup>	<i>m</i> <sub>1</sub>
<i>r</i> <sup>1</sup>	<i>r</i> <sub>1</sub>
<i>d</i> <sup>1</sup>	<i>d</i> <sub>1</sub>

Still higher or lower octaves are shown by the figures 2 or 3, etc., placed in the same way.

**PITCH.** The usual alphabetical names are used to identify absolute pitch: A, B, C, D, E, F, G.

At the beginning of a piece the pitch of the Doh is stated thus—

DOH = G or key G.

**BASS PARTS.** Men's voice parts, and basses generally, are octave-marked an octave higher than they sound. This plan avoids a multiplicity of octave marks, and accommodates itself to the instincts of adults of both sexes when singing together.

**SHARPS AND FLATS (*Chromatics*).** Sharps are shown by adding "e" (pronounced *ee*); flats by adding "a" (pronounced *au*) to initial letters of the scale degree names.

**MINOR KEY or MODE.** Controversy arises as to whether the Minor scale should be solfaed as from "doh" to "doh<sup>1</sup>", or as from "lah<sub>1</sub>" to "lah." Practice has settled that the "doh" minor plan is almost insuperably difficult, and that the "lah" minor plan is natural and easy. The "lah" minor fits in with the key signatures, and the presentation of major and relative minor keys in the Staff notation. The forms of the minor scale are, therefore, shown thus—

<i>l</i>	<i>l</i>	
<i>se</i>	.	<i>se</i>
.	<i>s</i>	.
.	.	<i>ba</i>
<i>f</i>	<i>f</i>	.
<i>m</i>	<i>m</i>	<i>m</i>
.	.	.
<i>r</i>	<i>r</i>	<i>r</i>
.	.	.
<i>d</i>	<i>d</i>	<i>d</i>
<i>t</i> <sub>1</sub>	<i>t</i> <sub>1</sub>	<i>t</i> <sub>1</sub>
.	.	.
<i>l</i> <sub>1</sub>	<i>l</i> <sub>1</sub>	<i>l</i> <sub>1</sub>

*Ba* or *bay* is a special name for the sharp sixth of the minor scale.

**CHANGE OF KEY.** This is shown by the device of a *Bridge Note*—

*d m s m sd t<sub>1</sub> d ds f m r d t<sub>1</sub> d*

The small "s" indicates that "soh" is to become "doh," and the small "d" that "doh" is to become "soh."

**Time and Rhythm.** The facts under these heads include the *Pulsation* of music, varied *Accent* or stress, and the relative duration of sounds. The effects of time-value plus accent as a combination are classed as *Rhythm*. This word also defines groups of values and accents that seem to belong

to one another and make a phrase. Refinement of contrasted accent are beyond the reach of notation. Therefore, only broad accents are shown by signs. Pulses (conventionally called *Beats*) are recognized as *strong*, *medium*, and *weak*. The grouping of pulses is called a *Measure* (equivalent to a *Bar* in Staff notation).

An upright line shows a strong pulse, a shorter upright line a medium pulse, and a colon a weak pulse. A double line (double bar) shows the end of a section or piece. In the illustration given below S is for strong, M for medium, W for weak.

Two-pulse measure	S : W
Three-pulse measure	S : W : W
Four-pulse measure	S : W M : W
Six-pulse measure	S : W W M : W W

Other possible measures (nine-pulse, twelve-pulse) are similarly shown.

**PICTORIAL TIME.** As pulses have equality of value (although they may be *all* fast or *all* slow), it is considered advantageous that pulse-signs should be equi-distant to the eye. Therefore, a long sound occupies relatively much more space than a short sound.

A note (the word is used conventionally to describe a Sol-fa initial letter) placed alone is a pulse space in value. A continuation is shown by a horizontal dash. A rest is shown by an empty space.

Four-pulse measure: | d : — : s | m : — : — ||

Here DOH is two pulses in value, a pulse rest ensues; SOH is a one-pulse note, and ME a four-pulse note.

**PULSE DIVISION.** The common divisions of a pulse or beat into Halves, Quarters, or Thirds are shown by the use of dots and commas—

| ½ ½ , ¼ ¼ ¼ ¼ , | ⅓ ⅓ ⅓ ⅓ ⅓ ⅓ , ||

Combinations of dots and commas show other ways of distributing values inside the pulse.

**The Tonic Sol-fa Method.** Signs and symbols that do not conjure up definite ideas are truly a dead language. Yet such a language is widely taught to young people, and certificates are awarded to those who show proficiency in its paper use. The educational world is beset with systems, toys and games that profess to teach music merely by teaching its alphabet. The crucial test of a method is the welding of such an inextricable connection between actual things and their signs that they inevitably co-exist in the mind. It has been well said that anyone claiming to be a musician should be able to hear with his eyes and see with his ears.

The Tonic Sol-fa method is based upon psychological laws. To familiarize a pupil with the thing first and then to rivet it to an unmistakable sign is a principle acted upon at every stage. By this means the notation becomes the spontaneous and living language of the mind.


The scale is taught piecemeal on a chordal plan. The "pillar" tones, DOH, SOH, ME (in this order) are taught first. From the beginning, the

aesthetic sense of the pupil is awakened by the appeal of the *Mental Effects*: the firm repose of DOH; the bold, exhilarating SOH; the pensive calm of ME. When this first tonal step is fairly well conquered, the expectant interrogative RAY and the piquant upward—suggesting TE are added. Next, the sombre side of the scale is introduced, and its effect is enhanced because it has so far been withheld. FAH is shown to be expectant of the ME, but, more than that, it is felt to be solemn and sometimes stern. Finally, comes LAH, the sad and almost tearful daughter of this wonderful family. The scale thus slowly developed is now rooted in the mind as a thing of beauty, and it forms the solid basis for all other tonal developments. It has been said that Tonic Sol-fa is a mechanical method. No accusation could be more untrue. In the hands of an expert teacher it provides, before all other things, an education in the poetry of sound.

**EAR EXERCISES,** involving the recognition of what is performed to the pupil, are a feature of every lesson: they serve to confirm the association of thing and sign built up by sight singing.








All through these and later stages, much use is made of the chart called the *Modulator*, which exhibits the scale in its conventional up-and-down relationships. There is really no up-and-down movement of sound, and this is why the horizontal Tonic Sol-fa notation is so readily associated with the scale degrees.

Time, accent, and all that is covered by the term "rhythm," are taught side by side with tonal details. It is noticed that, while we consciously count in pulses or beats the values of long notes, we *recollect* rather than calculate the effect of divisions of the pulse. Thus, while it would be difficult even for a musician to imagine the effect of a pulse divided into ½, ¼, ⅓, he would immediately conceive

it when the division is presented thus: 

In fixing this association of rhythm and notation it is found that the easily-felt accents of words are of great educational value. Teachers of music on any system and conductors instinctively have recourse to this device when they use nonsense words to give a conception of accent and value to an executant. This idea has been systematically worked out in connection with the Cheve method and many years ago it was adopted by Tonic Sol-faists.

**Time-Names or Rhythm Reminders.** The syllables chosen form rhythm reminders, although inaccurately they have come to be called Time-names. A few are given as specimens—

Taa	= whole pulse		taa
Taatai	= halves		taa tai
Tafatefe	= quarters		tafa tefe
Taatefe	= ½ ¼ ¼		taa tefe
Tafatai	= ¼ ½ ¼		tafa tai
Taa-fe	= ⅓ ⅓ ⅓		taa-fe
Taataitee	= thirds		taa tai tee

The rhythm names must be applied skilfully, if they are to be a real educational aid.

Inasmuch as all musical art, except some of its



recent radical developments, is based upon the common scale, it follows that *harmony* must be approached by this path. But it is in sight-singing, and the provision of a clear outlook on the material of musical art generally, that the system has been of such world-wide utility. To-day its advocates have the satisfaction of noting that many new and sane methods have adopted the principles and practices for which they have striven.

**History.** As stated above, Guido in the eleventh century was first—in Europe, at least—to use monosyllables as mnemonics of tonal effect. In the Elizabethan period, and later, syllables were used as sight-singing aids; but in the eighteenth century, solo-singing teachers in Italy began to use them merely as means of practising vowels, a heresy perpetuated to this day, and which led to the syllables being employed, or it might be said degraded, to name absolute pitch. About 1824, Miss Glover (1785–1867), in her school at Norwich, found that she could teach her pupils to read from the syllables without using the ordinary notation, and to make this plan known she published a *Scheme for Rendering Psalmody Congregational*. In 1841 this book attracted the attention of the Rev. John Curwen (1816–1880), a Nonconformist minister, who soon realized the important potentialities of the idea, and from that time forward, devoted his life to the improvement of the notation and the promulgation of the system.

**TOOKE, ANDREW** (1673–1732).—Educated at Cambridge University, became usher at Charterhouse School in 1695, and in 1704 professor of geometry at Gresham College. In 1704 he was also chosen a fellow of the Royal Society. In 1728 he became master of Charterhouse, and held that position until his death. His works include *The Pantheon* (stories of ancient gods and heroes), a synopsis of the Greek language, and a number of translations.

**TOTTENHAM TRAINING COLLEGE.**—St. Katharine's Training College, Tottenham, was erected in 1877, at the expense of the Society for Promoting Christian Knowledge, for the training of women teachers. The practising schools include girls' and infants' departments. In addition to the College schools, a number of local schools are used by the students in gaining teaching experience. The College courses prepare students for the Board's Final Examination and the London Final Examination in Arts. Among the many successful teachers trained at Tottenham have been head governesses at the College, and also at Edge Hill, Chichester and Truro Training Colleges. Prebendary Hobson, who came from Battersea Training College, held the post of principal from the opening of the College for many years, and had a large share in its successes. The present principal is Miss Edith M. Gowan, B.A.

**TOUCH, THE SENSE OF.**—Although there appear to be only two kinds of receptors in the skin which are sensitive to slight pressure, the impressions derived from these are co-ordinated and analysed in the brain into a variety of complex sensations. There are receptors, known as Meissner's corpuscles, which are sensitive to light touch, and their distribution coincides closely with the power to localize a spot stimulated; and with the discrimination of a double stimulus according to the

distance between two spots simultaneously touched, as by the points of compasses. The most sensitive tactile receptors are the short hairs, around which nerve fibres are situated. We distinguish different kinds of sensation according to the number of touch spots simultaneously stimulated, according to whether they are stimulated successively or together, and according to whether other sense organs, especially those of muscular sense, are stimulated with them. Thus, the appreciation of the hardness of a body depends on a combination of touch with the muscular sense, while the sensations known as "tickling" or "itching" depends largely on the time element. The touch spots on the skin are sharply localized points, and are surrounded by areas insensitive to slight pressure, such as that required to bend a human hair. If a fine needle be inserted into one of such touch spots, no sensation of pain is produced—merely that of a hard object pressed upon. The number in a given area varies in different parts of the body, being greatest in the tongue and the finger-tips, least on the back and thighs; there are none at all in the cornea. The actual stimulus appears to be deformation of surface, rather than pressure itself. A finger dipped into a cup of mercury gives a sensation of pressure only where it passes through the surface of the mercury, which is the only place where there is actual deformation of the skin, although pressure must exist in the parts immersed. A series of stimuli can be perceived as separate by the skin at a rate at which other receptors fuse them together. A tuning-fork of 100 vibrations per second gives a series of taps which are appreciated as distinct by touch, while the ear perceives a continuous musical note. The sensibility to light contact is greatly diminished by removal of the hairs, so that it is reasonable to suppose that these hairs intensify the effect by acting as a kind of lever. It has been found that the energy of the stimulus required to affect a bare nerve fibre itself is more than two thousand times as great as that required to excite a sensation of touch from the appropriate receptor.

The fact that a spot stimulated is accurately localized has been called the *local sign* of a tactile sensation. This is even more obvious in the case of visual sensations. Cases of congenital cataract, which have afterwards been cured so that vision was obtained for the first time, have shown that the "local sign" is not inborn, but developed in response to the comparison of visual, tactile, and motor sensations. Physiologically, a nerve fibre from a particular spot has different connections in the nerve centres from those of other spots, so that, when represented in consciousness, the sensations must be distinct. By repeated experience, we have learned to interpret sensations of touch as being evoked by external objects. They are projected, as we say. The sensations produced in the hand by contact of a walking-stick with an external object are localized at the end of the stick.

W. M. B.

**TOWN AND GOWN RIOTS.**—(See STUDENT LIFE, THE HISTORY OF.)

**TOWN FREE GRAMMAR SCHOOLS IN ENGLAND.**—The grammar school dates back to the earliest historic days in England, for the schools at Canterbury and probably Rochester were apparently revived by the pioneers of Christianity, and teachers were appointed "according to the custom of Kent." In other words, they are a link

with the Roman Municipal School in Britain. When the episcopal control of education came into full force at the end of the eleventh and the beginning of the twelfth century we find that the collegiate churches were carrying on the tradition under the secular canons and then under the Augustinian canons and under the immediate or mediate control of the bishops and the ultimate control of the Crown. In these grammar schools, from the end of the eleventh century till the Black Death of 1349, all teaching was in the Anglo-Norman tongue. Many of these schools were Town schools as in the case of London, where there were three grammar schools, St. Paul's, The Arches, and St. Martin's. After 1349 three new developments took place and the teaching was in English, and the lay founder and lay teacher came into existence. The first lay founder, or rather foundress, was Lady Catharine Berkeley, who founded the still existing Wotton-under-Edge Free Grammar School (in Gloucestershire) in 1384. A few years earlier (c. 1373) Anthony Wykeham founded Winchester School, but this may be regarded as an ecclesiastical foundation. In the fifteenth century free grammar schools began to multiply. The story of such multiplication in London is full of interest. Schools were founded by episcopal licence in connection with St. Dunstan in the East and the Hospital of St. Anthony (1441). At this time there were various unlicensed schools, and four parishes in the city (All Hallows; St. Andrew's, Holborn; St. Peter's, Cornhill; and Colchirche) petitioned the Crown for the establishment of grammar schools. Gloucester in 1410 had already, by a famous law suit, secured a free school, and the multiplication of schools went on at the very time when the decay of learning was so apparent that the ancient universities fell to their lowest ebb. The establishment of free town grammar schools in the fifteenth century made possible the revival of learning in England and the fruitfulness of the Elizabethan age. Ecclesiastical schools were dying, and the free grammar schools of lay foundation were the answer to the demand for education. The ancient ecclesiastical grammar school in the town of Cambridge was a good instance. It was apparently absorbed by the song school of King's College in 1443, and so jealous were the authorities that every effort was made to suppress private schools, and as late as 1570 the teaching of grammar was actually forbidden in the town. Then came the school founded by Stephen Perse, which began work in 1618 and is to-day a noteworthy public school. In these new schools that began to arrive at the end of the fourteenth century the ecclesiastical influence was the more obscured by the fact that the masters were no longer necessarily clergymen. Mr. A. F. Leach notes that as early as 1391 the schoolmaster of Higham Ferrers School was Mayor of the Town. In 1432 William of Sevenoaks founded the free grammar school at Sevenoaks and specially provided that the master should not be in holy orders. William was a citizen of London and a member of the Grocers' Company. In 1443 a member of the Mercers' Company, John Abbott, formed a school at Farthinghoe, in Northamptonshire, and in 1503 the Lord Mayor of London, Sir John Percyvale, of the Merchant Taylors' Company, founded a free grammar school at Macclesfield. Sixty years earlier the king (Henry VI) had, in 1440, founded Eton College. Mr. A. F. Leach gives these instances of what may be called the beginnings of lay endowment

of education in the shape of town free grammar schools. It was not only the lay person who took action: the municipal corporations were anxious to oust the ecclesiastical control of education. On 18th March, 1503, an order was made at the Great Court at Bridgnorth by the 24 burgesses that "there shall no priste kepe noscole save only oon child to helpe hym to say masse after that a scole mastur comyth to town, but that evry to resorte to the comyn scole in payne of forfetyng to the chaumber of the towne 20s. of every priste that doth the contrary." Mr. Leach also refers to this school. The municipal control was complete, for, on 20th May, 1629, the corporation dismissed the head master and the usher of the school. In the sixteenth century the corporation of Cambridge tried to found a school out of the rates, and the use of rate aid for education in the towns was not uncommon. The legislation of the Tudor period, while it abolished the remnants of the mediaeval control of education and encouraged lay foundations, maintained the episcopal control of the teaching profession, and this control, after the Restoration, did much to injure the free grammar school system, and, indeed, brought secondary and university education to a very low level. Yet the conception of lay endowment survived, and the great lay endowment movement, which roughly lasted from 1665 to 1730, and was largely stimulated by the Nonconformists, provided a number of schools which to-day are playing a substantial part in national education. The free or town grammar schools may be said to have sprung from four sources: the mediaeval ecclesiastical foundations (often refounded in Tudor times), lay foundations from the end of the fourteenth century onwards, municipal or quasi-municipal foundations, and foundations of city companies or members of city companies, and lastly, foundations of the late seventeenth and early eighteenth century intended to evade the Conformity legislation. All these schools, with a few exceptions (for some free grammar schools have died, and even to-day occasionally, to the disgrace of local patriotism, an ancient school is closed), are to-day playing an active part after resuscitation under the Endowed Schools Acts of 1868, 1869, and later years.

J. E. G. DE M.

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**TOY-MAKING.**—Toys and toy-making are inextricably associated with play and the play attitude of children. Toys may be divided generally into three classes, namely, ready-made toys, simple improvised toys, and constructive toys. Of the first little need be said, except to point out that, from an educational point of view they are of least value. To give a small child only expensive mechanical toys is a mistaken kindness. At the present time, too much money is spent on elaborate toys of which children soon tire, and which, by their very elaborateness, rob the children of many invaluable opportunities for experimenting and devising toys for themselves. The toy-engine of to-day has only to be wound up and it will work without the least thought or conscious effort—which is the root of all educational advancement—on the part of the little operator. The rails have only to be joined up, and a complete system is

there. Without doubt, such toys have a place in a child's life, should he be blessed with the where-with-all; but only a limited place. The educational limitations of such toys are obvious.

The first stages of toy-making are seen in young children when daddy's walking-stick is used (hobby-horse fashion) for a "gee-gee." When a little later the little girl uses soil for sugar, tea, etc., pieces of tiles, slates and broken crockery for dishes, and a stone or the curbstone for a counter, she is improvising a shop. The walking-stick may be a long cry from a horse to the adult, just as the curbstone is far removed from a grocer's counter, but to the child whose imagination has not been dulled by the matter-of-fact of later life, the whole situation is very real and serious. Imagination is woven round these simple improvisations, and this makes up the complement of reality.

As the child grows older he becomes dissatisfied with these shams and make-believes; and he desires the real things; he is no longer satisfied to have a wooden spade (like a girl) and bucket with which to play on the shore; he wants an iron spade—one more nearly approaching the real one used by his father in the garden at home. Further, the things with which he was content in the past, he despises now. His outlook and his experience are wider; he sees through the little pretences and artificialities of his earlier toys and plays. He has ambition; he wants to do something great, to make something real. The unstable paper table, which was quite satisfactory from his point of view then, is no use now; he must have something more nearly approaching the real table. In order to satisfy this need, pine veneer—which may be cut with scissors—and large match stales (without brimstone) are excellent substitutes for paper and cardboard, and for practical purposes are within the manipulative capabilities of the average eight-year old child. While these materials are more suitable, the greater advantage is in the constructive processes, for the child can build up the models piece by piece; just as, say, a carpenter builds up a table. The difficulty children experience in comprehending the developments of three-dimensional objects in the flat is tremendous; with veneer, etc., this is entirely overcome, for the child in constructing, say, a table, sees the thing grow stage by stage.

**The Working Model.** As time goes on even this kind of toy becomes unsatisfactory; the desire for something that can be made of use personally, or better still, something that will "work" or "go" is more predominant, and the tenseness of such playwork is remarkable, and of distinct educational advantage. In order to exemplify this, the writer gives the following from his own personal knowledge and experience. In a school handicraft room a boy was one day discovered making a toy engine from a small coffee tin, (which had a lever lid), a cigarette tin lid and several pieces of wire. This boy was observed for several lessons, and, though the model when finished was not of first-rate workmanship, it "worked" and gave the boy a lead which he followed out later. Two pieces of tin, forming the bearing support for the spindle of the fan, were soldered to the sides of the coffee tin which served as a boiler. The cigarette tin lid was punched in the centre and a wire fixed through it to serve as a spindle, while the rim of the lid was snipped and crimped to form a fan. Three

wire legs were also soldered to the sides of the boiler to support it. A small hole was made in the top of the boiler, in order that the steam escaping from it might impinge on the crimped cigarette tin lid. A spirit lamp was contrived out of a tooth powder box with a hole punched in the lid, and shredded rag did service for a wick. This completed the engine and, though many mistakes were made, they were improved upon later. On questioning the boy he formulated the following criticisms: (a) that the spirit lamp needed a small hole in the top to allow for expansion of the gas in the tin (this by experiment); (b) that some other method of supporting the boiler than by soldering wire to the body should be found—this was also discovered by experience, when on one occasion the boiler boiled dry and the model collapsed; (c) that a piece of fine tubing was better than a hole in the boiler top; (d) that a wooden pulley attached to the fan spindle would drive a small model. Further, in conversation with the boy during one lesson, it was suggested that, if he had arranged the lid of the tin as the top of the boiler instead of the bottom, as was the case, the lid would have blown off had there been an over-pressure of steam. To this was received the rebuking reply "Please, Sir, I thought of that, but the lid will blow down just as well as up, and the water from the boiler will put out the light." In this simple idea the boy had re-invented the fusible plug now found in all up-to-date engines.

The point of the whole work was that the boy's interest was maintained throughout—on account of the pleasurable effort of solving a problem and working out a series of difficulties in order to attain the desired end. His effort was sustained—pleasurable effort—and this sustained effort is the best criterion of intellectual progress. He was unconsciously an inventor while he thought he was at play; a discoverer when he thought himself a tinker; an artist-craftsman, when he did not consider himself even a workman.

The pleasurable activity thus described tends to become habitual, and so, from the play activities of early toy-making, comes the later and more serious playwork of a hobby. The social values of such hobbies is great, and, as these are to a wide extent of an activity nature, the opportunities afforded in school and elsewhere for the development of this activity should be sedulously encouraged. The re-establishment of home occupations for leisure hours would do something to restore home crafts to the place they occupied thirty or forty years ago. Hobbies will also often be the means of children laying down a voluntary foundation of specialized knowledge, which may eventually lead to, or be a guide for, a life's work.

**Reference—**  
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G. F. J.

**TOYNBEE, ARNOLD** (1852-1885).—Son of a Wimbledon surgeon, was an Oxford student with Alfred (afterwards Lord) Milner, and a favourite pupil of John Richard Green. He founded a social club at the University, was foreman of John Ruskin's gang of road-repairers, and was nicknamed the "Apostle Arnold." He entered Oxford absorbed in thoughts of religion, but devoted his later years to the study and teaching of economics. His ideal was a life of service to man, and all his sympathies were with the aspirations of the working classes. He saw their need for

guidance, and to fit himself for the work he studied the laws governing production and distribution of wealth, and the relative merits and demerits of competition and self-interest. In 1875 he paid his first visit to St. Jude's, Whitechapel, to take up social work in his summer vacation. In 1878 he became a tutor at Balliol, in history and economics, but overworked his weak frame as poor law guardian, social reformer and promoter of societies and clubs for the working classes. He was in the thick of all the movements to improve the external conditions of life for the people—better houses, open spaces, and free libraries—which were then struggling for public recognition. He lectured in London and the great cities of the north on these and similar social questions, and in great centres of industry endeavoured to stimulate co-operation between employer and employed. The strain of his active life killed him. In January, 1885, he lectured in London on Henry George's book *Progress and Poverty*, and went home to the bed from which he never rose again. (See also UNIVERSITY SETTLEMENTS.)

**TOYNBEE HALL.**—The name of a community of University men who make their home in East London with the object of learning and helping to mitigate the conditions under which the poor are living, and of working generally towards the lessening of inequalities between class and class.

The causes immediately leading to the foundation of the Settlement in 1884 are to be sought in the history of thought at Oxford during the two previous decades. The social idealism which found expression in the teaching of Thomas Hill Green and of Arnold Toynbee (in whose memory the Settlement was subsequently named) had been constant in affirming the infinite value of the individual and the meaning of personality. At the same time, among thoughtful people the news announced years before by Ruskin was rapidly spreading—that, for the majority of Englishmen, herded together in the industrial quarters of great cities, the possibility of a full personality does not exist. A sense that this state of things must be brought to an end was already fermenting in some of the best brains of the university. It was also seen that the road to social betterment must lie by way of more exact knowledge of actual conditions. The late Canon Barnett (then Vicar of St. Jude's, Whitechapel), who had a wide friendship among the undergraduates, advised, as an immediate step, the opening of a house where university men might live for longer or shorter periods and taste for themselves the experiences of the poor. This suggestion met with an eager response from both the older universities. The Hall of Residence in Commercial Street, Whitechapel, was built and opened in 1884, and, during the next twenty years under Canon Barnett's wardenship, became a focus of varied activities. The actual work accomplished may be rapidly surveyed under five main heads.

**Educational Activities.** From the first, Education was a dominant interest. The doors were opened wide to the University Extension Movement, under whose auspices many courses of lectures were given. The residents and their friends held evening classes in literature, philosophy, languages, science, and arts and crafts. Many literary and scientific societies sprang into vigorous life. Debating clubs and clubs for foreign travel were formed. By weekly concerts of good music, and frequent exhibitions of

great pictures, the endeavour was made to awaken or to nourish the desire for beauty. The keen interest which was taken in the picture exhibitions led to the building of the Whitechapel Art Gallery, which was opened in 1901 and which still plays its part in the art life of London.

The dream of the founders that Toynbee Hall would form the nucleus of an East End university seemed to bear promise of fulfilment. But the very energy with which the idea of adult education took hold of people and spread prevented the dream being realized as they had pictured it. Instead of radiating from any one point, popular education has ramified into a great network—polytechnics, trade schools, evening institutes, and the newer type of secondary school and university—aiming at the better equipment of the working man and woman. In spite of the rapidity with which these and other forms of popular education developed, Toynbee Hall as an educational centre has never become merely one of them, but has preserved throughout an individuality of its own. It has, moreover, developed a strong corporate life centring round a Union controlled entirely by the students themselves, who at the time of writing number upwards of 700. Separate mention must be made of the special classes for elementary teachers which were held during the early years. Many of the present head teachers of East and North-East London speak warmly of the intellectual stimulus they received in youth from these classes.

**Social Activities.** The Dock Strike of 1889 determined the next phase of activity. The impartial help given by the residents won the confidence of the men's leaders. In a number of smaller strikes in various trades, Toynbee Hall found much to learn, and had also something to give. One of the troubles of a poor neighbourhood is the lack of disinterested men with leisure to serve on public bodies. Toynbee Hall residents have been able to play their part as members of the London County Council, Borough Council, Board of Guardians, the Central Unemployed Body, and on many local councils and committees. With the opening of the new century, the interest of the Settlement was focused on the curves of unemployment. But, prior to this, investigations of social conditions had been conducted from time to time by residents, either for the Government or for private ends. The results of several of these inquiries have been published under the Toynbee Trust, a fund collected by the friends of Arnold Toynbee in aid of social research. The rapid growth of public interest in the problems of boyhood and adolescence has been reflected at Toynbee Hall, where of recent years much of the time of the workers has been given to Boys' Clubs and to the Boy Scout movement.

**Other Activities.** In 1914, the temporary distress in cabinet-making and allied trades was met by the establishment of a school for leather work at Toynbee Hall. This school, besides performing its immediate work of relieving unemployment, was valuable in demonstrating what has often been questioned, that even elderly men can be trained to pass from one skilled trade to another if that other requires kindred aptitude.

Though the foundation was strictly non-sectarian and no religious test of any kind was imposed upon residents, yet the enterprise continued to live in the Spirit of Idealism which had called it forth. It was, moreover, dominated by the profound

spiritual optimism of its first Warden (Canon Barnett). The most varied types of men found themselves at one in their love and veneration for this man who drew others to him by his simple faith in what was best in them. His words "In understanding, there is strength; in beauty, truth; and, in loving kindness, a great salvation," give the keynote of his work and life. The ideals which he constantly fostered of mutual understanding and of friendship between class and class were reflected in the many boys' and men's clubs in the neighbourhood managed by residents and old residents, and in a multitude of social gatherings which found happy times of recreation and companionship under the roof-tree of Toynbee Hall.

So much in barest outline for the past. It may be asked "Is this an institution whose part has now been played and which a changed world order has already rendered uncouth?" Believing in the element of permanence contained in the original idea we would answer "No." As already indicated, the Settlement Movement was originally a class movement working largely from the idea of the obligation of those who have had greater opportunities. Now that we are somewhat nearer to the goal of equal opportunity, this aspect of the movement tends to disappear. What still remains fresh and living is the spirit in which the Settlement first began—the spirit which believes in "the superiority of quiet ways to those of striving and crying," which measures material things not by conventional standards, but by their potential value to develop personality, and which retains undaunted its faith in the spiritual progress of the race.

J. St. G. H.

**TOYS AS A MEANS OF EDUCATION.**—A child, because he is small, needs and makes a small world to live in. In this small world of his own he requires a certain apparatus to carry on his fairyland affairs, and to imitate, or parody, the goings-on of grown-up people in the great world which surrounds his miniature one.

This apparatus is his toys; and, though they are small like himself, they are of the deepest importance, not only to the child, but to the man to whom the child is father; for the suggestions which the toy makes—and it is only a toy so far as it makes suggestions—are indelibly stamped on the child's imagination. If the suggestion is healthy and vital, its educational value is incalculable; if vicious and vulgar, who can gauge the evil it can do?

For toys are really symbolical; that is to say, they are the transparent effigies of something more important than themselves, on whose account alone they are precious. That boat a few inches long, rigged with two or three sticks, some string, and a rag, is not a makeshift model to its little owner and skipper, but the embodied ideal of all ships which spread their wings and plough their way to far havens. To the little girl, her doll is no mere bag of sawdust with a wax frontispiece; it is a symbol, and dimly she knows it is only a symbol; but, for the sake of what that symbol means, she pours out for it an impassioned adoration.

If we agree, then, that these transparent things carry their inspiration with them, what shall we say of most modern toys? Look at those *blasé* clowns, and bottle-nosed policemen, soldiers, and sailors; Teddy-bears with violet or gas-green skins; besotted pincushions of golliwogs; long-necked, winking cats; and boy and girl twin dolls with

amorous, leering eyes. Could anything be conceived more vile and impure? How can we give these abominations to little children just emerging from infancy, and ready to receive, in innocence, for good or ill, any impressions we offer them?

**Toys for Different Stages of Child Development.** The play instinct appears early in the baby's career, when it catches the nearest attractive object and tries to bite it. Later on, any sparkling or coloured object that moves delights it, and it tries itself to make the fascinating thing repeat its rhythmic movements. Then, as soon as it has learned to keep its own equilibrium, it loves to drag its cart and roll its ball, and make its mill turn in the wind. It loves to see things move and to make them move; and, though it is as innocent of conscious cruelty as a cat with a mouse, it fares the luckless kitten, puppy, or bird which is heedlessly given it to play with.

A time comes when purely imaginative toys become more interesting to the child than his ball or cart; when the elusive air-ball floats into his ken and tries to pull him up to the sky; when clay birds flutter down wires around an emblematic tree; when the prim gooseherd guides his white geese, trembling on little wire springs, across the green, homewards. These, and many more, are of the truest and wholesomest type of plaything, because they suggest the charm of that simple country life where everything is interesting because it is useful, and beautiful because it is pure. These toys, so abstract and yet so concrete, lead us to the very Golden Age of Toys, whose heraldic legend is "Let's pretend." Then, indeed, the wooden dagger, pop-gun, and rocking-horse make a true soldier of the boy. He strides his hobby-horse and launches his ship on unknown seas with all the *savoir faire* of a sturdy veteran or of an old sea-dog. "Let's pretend," says the little girl, as she tidies her dolls' house, cooks their dinner, or hangs their washing on a clothes-line stretched between two nursery chairs. "Let's pretend," says the ferocious infant whose sex has only recently been determined by a slight sartorial distinction in his nether garments, and all at once, with a curtain for a cave and a stick for a musket, he is rescuing shipwrecked mariners from cannibals, or leading a handful of "tars" against the reckless crew of the "Jolly Roger."

The fact, so hard for us to comprehend, is that the child is aware with one part of his mind that the play is untrue, and with the other and better half, knows that it is utterly true.

Of all living toy artists, the creator of Peter Rabbit and his friends stands supreme. She has remembered the child's yearnings and has satisfied them. She has taken him into glowing little kitchens and shown him how bunched little hedgehog laundresses iron out robins' red waistcoats; and that kind little mouse mothers really make pots of tea from a boiling kettle. She has filled us with joy to know that some rabbits really go about in tiny jackets with brass buttons; and that comfortable mothers bring them cups of something nice and hot when they are ill in bed, and nothing can be seen but two ears on the pillow and two very small paws above the counterpane. All this is surely in the very best spirit of play: it is "let's pretend" to perfection; it is education of the truest kind: for the sum total of its teaching is gentleness, comradeship, and love of the bright-eyed, foolish, timid creatures that "move between us and the dust."

Toys must always be painted, and with the brightest colours. What is the soap-bubble without its prismatic hues? Who would love her Dutch doll if it had not lambent blue eyes, finely arched black brows, and rosy lips? Where, for the little man, would be the joy of his air-ball if it was uncoloured, or if his monkey on a stick had not a pea-green hat, crimson coat, and magenta legs? He much prefers his penny woolly lambs to eat gas-green moss in a purple fold. All this innocent discordancy tells him emphatically that these things naturally belong to him and to his kingdom, and not to ours.

**Nature Toys.** Toys are, to a certain extent, a product of the town, and are made for the children who live there. They are a consolation to the child for the loss of the country in which every child properly should be brought up. Toys ought, therefore, to tell of the country, of its inhabitants and their ways. In proportion as this, their proper object, is lost sight of, and as the town abandons its subordinate relation to the country and becomes an unwieldy modern manufacturing city, toys degenerate into those mechanical or ugly abominations which we have substituted for them.

To the child who is blessed with pure air, earth, and water, Nature herself, with a very little help, supplies a rich succession of genuine playthings. She gives us cowslip-balls, dandelion-chains, and the less formidable daisy-chains. Daisy-wreaths, too, are easy enough to make, and delightful to see in use. Grand fights can be waged with "head choppers" and "conquerors." What a unique joy there is in sliding the polished horse-chestnuts—was anything ever so delightfully brand-new?—from their gloves of white kid, and threading them on long strings for future victories! You can tell the time by dandelion clocks, if you only blow judiciously; and set walnut shells sailing down the brook. Whistles and pipes of different kinds can be cut from hollow stalks and elder twigs. Pigs can be made from gooseberries with the assistance of a lucifer match or two, and pink-and-white mice from the catkins of the willow palm. Could Titania desire daintier ware for her tea than an acorn cup, or Oberon a prettier pipe for his fairy tobacco? Enough has been said to suggest the ample store of toys which Nature offers the child who brings a child's heart to her cupboard.

To-day, more than ever, we must determine which of two ideals of citizenship, of true manhood and true womanhood, we wish to inculcate in our schools and nurseries. If the object of education is to achieve a superior kind of thinking and calculating machine, fully equipped,—

"To take possession of man's mind and deed;

To care not what the sects may brawl;

To sit as God, holding no form of creed,

But contemplating all,"—

then, indeed, the goliwog with its impudent stare may be the mistaken and underrated symbol of mortal progress. If, however, we repudiate that ideal, there is no alternative but to return to the Spirit which we have discarded, but which has achieved all that is worthiest of record in the past. That past may have had its faults, but to revive its spirit would be the patient and faithful reconstruction of society on principles which have always conduced to the truest welfare and happiness of mankind.

That so trivial a thing as a toy should have an

important bearing on such vast issues is not so astonishing when we remember that it is as true at the end of this era as it was at the beginning, that only children shall inherit the Kingdom which, if religion has any truth, must be the goal of all civilization. The great question with which not only our toys and education, but the whole of our social policy and professional activities, are concerned is whether that Kingdom has still any meaning or practical value for us—outside the nursery. We must remember that, however close a child's correspondence with the Unseen may be, it is through his toys that the correspondence is carried on, and that it is we, who determine what sort of toys he shall play with, who determine also what sort of spiritual companionship he shall keep. At present we appear to think that nothing is too vulgar or absurd for a child's budding intelligence to entertain. Are we feeding that intelligence or poisoning it beyond reclaim? But how can we otherwise poison or starve it unless we have a clear conception in our own minds of how we want our children to grow up—in other words, of what we want them to believe?

So far, then, from thinking that toys and their manufacture have only a specialized and industrial interest, we must regard them as of the supremest moment. It depends entirely, as I say, on what sort of a heaven or hell we wish to turn this country of ours into. Toys are the echoes or symbols of that condition—the infallible mirror of a nation's soul.

If we can persuade our children that green pastures and still waters are wholesomer than prurient streets and polluted gutters; if we can make them love leisure rather than haste, peace more than competition, and simplicity more than luxury; if we can inculcate the hope—I dare not say the faith—that will remove all obstacles because in its ungrasping innocence it cannot create any, and inspire a desire for the Land with its constructive energies, instead of for the Town with its destructive toil, for men instead of machines, for purity instead of sophistication, for honesty more than advertisement, for modest business with personal liability instead of imperial enterprises and ostentatious emporiums: if only we could believe ourselves and teach our children to believe that the old peasant proverb is literally true which says—

"Rosy cheeks and a careless mind

Leave all the wealth of the world  
behind"—

we might understand the charm, and feel some of the influences, and begin again to make vital playthings for ourselves as well as for our children.

For the moral of the old-fashioned toy was the moral of the only gospel that can ever bind men together or inspire their successful labour; how otherwise could it be a gospel! It told us that the curse of labour would be removed if the labour was for really useful things and not for gain, and that till men realized that mere luxury was theft, and idleness dishonourable, they could win no real happiness; but that to simple and industrious folk Earth opened her heart wide to bless them with unutterable joys.

MRS. GODFREY BLOUNT.

**TRACTATE OF EDUCATION.**—(See MILTON, JOHN).

**TRADE SCHOOLS FOR BOYS.**—The occupational distribution of male workers throughout

Britain and other countries renders employment in trades one of the predominant problems of modern times; the hours, wages and conditions of employment in trades have provided the most fruitful sources of controversy during the past half century, and have led to bitter disputes and industrial strife. The conditions under which boys can enter trades have steadily altered, and there is now no general coherent system prevailing throughout all the trades, although a survival of the rigid conditions of apprenticeship may be found in certain restricted trades. Difficult conditions of entry into trades have been imposed and retained to restrict the numbers entitled to practice a craft, and enjoy the resulting benefits, so that a class of workers may retain their privileges. In this matter trade unions have played a prominent part, and have, generally speaking, required a long period of apprenticeship varying from five to seven years, and a limited number of apprentices bearing some definite ratio to the workers employed in particular shops or factories, such as one apprentice to four men, but this ratio differs in different trades. Having secured this restriction in those intended to be admitted to trade privileges, the unions have not infrequently shown a keen desire to improve the status of the trade by adopting a constructive and helpful attitude towards technical education for their workers. (See TRADE UNIONS AND EDUCATION.) The restriction of numbers and the consequent low pay possible to apprentices, together with, in some cases, the payment of premiums, have led to a very serious deterioration in the quality of boys taking up trades, as numerous alternative openings are to be found in commerce, transport, and in newer industries less trammelled by tradition. The increased use of machinery, the ever-growing complexity and sub-division of workshop processes have diminished the need for handicraft skill; and, whilst many shops must remain where all-round skill is required, the more highly developed factories tend to divide workers sharply into operators, whose work is largely mechanical; machine setters and foremen, who must be highly skilled; and draughtsmen, designers and managers.

**Pre-apprenticeship Schools.** The difficulty of securing all-round training for the boys has steadily forced the problem of training on educationists and far-sighted employers of labour, and has led to the provision of trade-schools on a tentative basis. Official recognition has been given to schools of this type in Ireland under the title of "Trades Preparatory Schools" and in England as "Junior Technical Schools." The function of these schools is preliminary to actual workshop experience; in the former case, a generalized education is given for boys who may enter any trade, in the latter a specialized education is given for particular trades. Specialized schools for one particular trade are of necessity limited to large centres of population or to areas with a predominant industry. In this matter London has been the pioneer in this country, and successful schools for furniture-making, wood-carving, printing, silver-smithing, photo-process work, cookery and waiting, building and engineering have been gradually developed during the past fifteen years. Such schools are essentially pre-apprenticeship in character, the age range varying from 13 years to 17 years, and the courses extending over from one to three years.

The fundamental general elements of education, English, arithmetic, and drawing, are generally awarded a prominent place in the curriculum, the amount of time devoted to them gradually decreasing as the course advances. The specialized trade subjects are given correspondingly increased attention as the course proceeds, and include workshop methods and practice, trade drawing and calculations, and technical knowledge. Physical drill and gymnastics are usually also included. A well-balanced curriculum is possible on these lines, and a fundamental factor in the success of such schools is the employment as teachers of men skilled in workshop methods and technique. The cost of these specialized schools is high, approximating to, or even exceeding, the cost of a good secondary school, owing to the limited size of classes, the specialized teachers, the workshops and laboratories, and the materials required. This cost hinders the wide extension of such schools. From the parents' point of view, the cost of maintenance of a boy at school beyond 14 years of age is a serious matter, and the class from which entrants to trades are generally drawn can, as a whole, ill afford to maintain a boy at school till he reaches the age of 16, even although the subsequent advantages are clearly recognized. Consequently it has been found desirable to award a considerable number of maintenance scholarships to assist parents, with a grant ranging up to £15 or more per annum, and free education. Such scholarships are very keenly competed for, and the competition shows that, with the problem of maintenance removed, there are many parents ready and anxious to give their children the benefits of education beyond elementary. There is also a deeply-rooted desire among respectable working-class people to give their children the benefits of a "trade," as the serious disadvantage of those committed to casual work and labouring are ever prominently before them.

**The Potentialities of the Trade School** have appealed very widely to philanthropic and social workers, who see in this type of education a partial solution to the ever increasing scarcity of skilled workers, and a remedy for the blind-alley occupations so increasingly prevalent. Private benefactions have been given for the equipment and maintenance of such schools, old apprenticeship funds and charities have been diverted to provide scholarships in them, and a wide extension of such schools has become a leading principle in schemes of social reform.

Schools of similar type are found in France and the United States. In Paris the *Écoles professionnelles* have a more ambitious aim than trade schools in Britain: they aim definitely at replacing apprenticeship and turning out skilled workers after three years' training, and they are successful in recruiting the ranks of the best grade of skilled workers and foremen. Such schools exist for engineering, building, printing, and artistic crafts, and they form the most advanced type of trade school, resembling factories in their equipment, and carrying out work on definite business lines.

In the United States, trade schools of many grades are found, and a large number are privately endowed, but it is natural that a younger country less hampered by tradition should have a wider range of educational experiment. No one type can be said to predominate, and much of the work is as yet tentative, but its importance is receiving



constantly growing recognition. Interesting experiments have been made in giving alternate weeks of factory work and school training, notably at Beverly. On this plan pupils alternate from week to week, and factory organization is not seriously interfered with, but the possibilities of such arrangements rest chiefly with large organizations.

Broadly speaking the need for some form of trade school is becoming recognized: the form in which training should be given is still far from stereotyped—pre-apprenticeship schools, part time schools, evening classes, and trade schools aiming at full training, find each its advocates. Industries vary so enormously in type, in location, in size of factories and in relative development that no one royal road exists. Such schools are, however, of national importance in the maintenance and development of our industries, and in the development of a race of healthy, capable citizens.

J. C. S.

**TRADE SCHOOLS FOR GIRLS, DAY.**—Day trade schools for girls are intended to provide a preparatory training for those desirous of entering certain skilled trades in which women find employment. As a rule, there is no recognized method of entry into these trades. Apprenticeship for girls barely exists now, though the name is often given to a worker in the initial stages.

It is difficult for parents to ensure that their daughters will be really taught their trade in a workroom. Employers cannot always afford the time and space required for giving instruction, and it is difficult to place the responsibility for training on any one particular person. Also, in some of the highly-skilled women's trades, the seasonal rushes of work are so great that conditions are not favourable for teaching. The work has to be sectionized, and workers are often confined to one process only.

In the trade schools, girls are given a thorough training in the elements of the particular trade chosen. The course extends over two years, and is intended primarily for girls between 14 and 16 direct from elementary schools. In France, trade schools for girls (*les écoles professionnelles*) were established after the Franco-Prussian War, when the need for reviving national industries gave impetus to the development of technical education.

In England, the first trade school for girls was opened in 1904 by the Governors of the Borough Polytechnic, aided by a grant from the London County Council.

Training in other trades has been developed at this Institute and other schools opened, so that there are now in London eight day trade schools for girls maintained or aided by the London County Council.

In Greater London, there are three schools maintained by the Middlesex and West Ham Education Authorities.

London, on the whole, offers the widest opportunity for this type of education for girls, owing to there being a greater concentration and variety of skilled work for women in London than in any one centre in the provinces.

Besides trade schools in London and Greater London, others in dressmaking have been opened in Manchester and Plymouth.

Day trade schools for girls must comply with the regulations for Junior Technical Schools for

girls. They are recognized by the Board of Education, and can earn a grant.

**Organization.** The following trades are taught: Corset-making and lingerie; costume designing and making; dressmaking; embroidery; ladies' tailoring; millinery; upholstery; waistcoat-making; hair-dressing; photography; domestic service; and laundry work.

The trades in which training is given have been carefully selected as those in which there is a demand for skilled employees, which offer good prospects to the worker, and also lend themselves to school instruction. Before any trade is definitely chosen, careful inquiries are made into the conditions, requirements and prospects prevailing; and the advice and co-operation of employers, foremen, and forewomen are sought.

Attached to each trade class is a consultative committee of experts, who meet periodically to examine and criticize the work.

Admission to the schools is obtained on payment of a small fee, or by a scholarship providing free tuition and a maintenance grant, approximating in value to an apprentice's wage.

**Methods and Aims.** The first three months are probationary, and girls showing no aptitude for the trade chosen are discouraged from proceeding, or are transferred to one more suitable. Much valuable work can be done in the trade schools by enabling a girl to find out her particular bent.

About two-thirds of the curriculum is given to practical instruction at the hands of teachers who have had actual experience in their trade. The rest of the time is devoted to art, physical exercises, and subjects of general education to develop the mental quality of the girls side by side with their technical skill, to make them responsible workers and intelligent citizens.

The shorter hours of work and the further prolongation of school life provide more favourable conditions of learning a trade for young girls than if they had gone straight from school into a workroom.

In the school training, the course is so planned that the young worker is equipped with an all-round knowledge of her trade; while at the same time, in technical skill, she must not be inferior to the girl of the same age who has entered the workroom at 14, and, with less complete knowledge, may have become a good worker in one process.

With regard to these "learners," however,—the girls who enter the workroom at 14—there is an increasing tendency on the part of employers to send them to part-time classes in the trade school for instruction.

At the end of the course, the girls readily find places varying from 24s. to 30s. a week, and are eagerly sought after by employers. The subsequent careers of the girls are followed with interest by the schools, where a record of each past pupil is kept.

M. E. N.

**TRADE SCHOOLS IN MUNICH.**—The educational principle involved in German trade schools is the production of suitable citizens. Under modern conditions, every community has a far greater need of manual labourers than brain workers.

Dr. Kerschensteiner, as Director of Education at Munich, was the pioneer of the movement, although he disclaims originality for the idea. As far back as 1803 the Bavarian Board of Education instructed the



local school authorities as follows: "Certain technical accomplishments are more or less necessary for every person. It is, therefore, necessary to establish everywhere industrial schools for boys and girls, and for these to stand in connection with the ordinary academic schools."

The modern development dates from 1895, when Kerschensteiner was appointed Director of Education. He pointed out the then existing personal indifference between masters and apprentices, and how the efforts of the State and municipality for industrial education neglected to use practical handwork.

"I insisted, first of all, upon reviving among the employers of an industrial group an interest in the work of training. I tried to engage the active support of the existing trade societies in the education of the younger generation in their trades. The natural result of this plan was that the idea of a general continuation school was abandoned. In its place arose the special continuation school connected with its own particular trade. What was new was the organization of the school with the single trade as a basis. It was also a new departure for municipal schools, maintained at the public expense, to have the corresponding trade combination linked up with each single trade school."

In every German town the members of each handicraft are united to form an *Innung*. Kerschensteiner's innovation consisted in getting the *Innungen* to assist him. They were allowed a share in organizing and inspecting the schools. Besides this, they have the right to propose master workmen or thoroughly capable journeymen as teachers, and they supply materials and models for trade drawing. The local education authority is responsible for buildings, salaries, machines, and apparatus.

Another important factor making for the success of these schools is the obligatory attendance in continuation schools from the age of 14 to 17.

The continuation schools for boys fall into two classes: (a) for apprentices—these are obligatory and free, though not beyond the 18th year; average hours of instruction, eight weekly. (b) For journeymen and master-workmen—these schools are optional and fees payable, but pupils must previously have attended an apprentice special school.

**Organization and Method.** At first, five special schools were opened for butchers, bakers, shoemakers, hairdressers, and chimney-sweeps. The early years were marked by difficulties with the trade societies. During the year 1914-15 there were 55 apprentice schools at work in Munich with 11,340 pupils. The time-table includes: One-hour business composition and reading, one-hour arithmetic and book-keeping, one-hour citizenship and hygiene, four to six hours' instruction concerning tools and wares; trade drawing and modelling are taught; physics for mechanics and machine-makers, chemistry in the schools for photographers, druggists, lithographers, bakers, etc.; foreign languages in schools for mercantile employees and waiters; and practical workshop instruction in all cases.

The pupils attend twice a week in the afternoon: once from 2 till 5, and once from 4 till 7; the remaining hours are fitted in according to circumstances. Kerschensteiner is opposed to these pupils being instructed after 7 p.m. Every separate school organization is based upon complete accord with the trade in question. Instruction in practical work is given only by journeymen or master-workmen appointed as special teachers.

Some years back, 5,000 boys attended the schools,

and were organized in classes of about 30; the working expenses amounted to £11,000. Simultaneously there were 1,600 students in the higher voluntary trade schools, class (b); working expenses were £7,500. In the report published in 1915, the total cost for both classes of schools was £52,900. The number of pupils had been 11,400 in the obligatory and 473 in the optional schools.

Opponents of the movement have urged that trade schools are equivalent to a system of State apprenticeship, by which the State can enslave the masses in the interests of capital. Kerschensteiner, in justification of his work, urges that the ability of the masses is better adapted to manual than to mental work. In the natural development of the child, physical precedes mental development. Especially from the age of 3 to 14, the instincts and desires for manual occupations are undoubtedly the strongest; therefore elementary schools should afford general manual training—the continuation schools, special training.

Manual training must be made a systematic tool for the training of the will and the sharpening of the judgment. The aim of trade schools must not be utilitarian (*i.e.* to supply the necessary workmen for the State), but their inception is justified by the necessity for having honest and conscientious workers to carry out the work conceived by creative minds. The industrial school places the formation of character first, and will arrange its instruction so as to allow the child to acquire most of its knowledge through experience. The fundamental idea of such a school is by means of a minimum of knowledge to build up a useful citizen endowed with a maximum of skill, ability, and joy in manual work. It has three problems to solve: (1) Preparation of the individual for his future vocation; (2) the making of this vocation ethical; (3) the raising of the general ethical standard by enabling the individual to co-operate. T. F. A. S.

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**TRADE UNIONS AND EDUCATION.**—The distinctive service of trade unions to the cause of education has been twofold. They have contributed to technical efficiency, and they have promoted a social sense. Trade unions of skilled workmen have always insisted on proper training by apprenticeship, and they have also always resisted the introduction of inferior workmanship or the use of shoddy materials. The weekly and monthly journals issued from trade union offices testify to the interest of trade unionists in the maintenance of the highest possible standards of workmanship, and in the education of their members in the technicalities of their trades. A knowledge of the best methods of workshop practice has thereby been imported, and a desire for more comprehensive technical training has been generated. It is, in fact, not too much to say that these journals have been, to a large extent, the feeders of the technical schools and classes throughout the country. Some of them have promoted the giving of prizes for

the highest number of marks gained by the students attending classes under the auspices of South Kensington and other public authorities. As an instance of this, the Newton and Allan Memorial prize of the Amalgamated Society of Engineers may be mentioned. The society in question has, for many years, given such prizes in memory of the two men who were mainly instrumental in its formation.

The unions have by such means been the buffers which have prevented competition lowering the high standard of quality, the distinctive feature of British industry in the markets of the world, and they have done much to keep alive the spirit of the old trade guilds, which were the custodians of the interests of the public at a time when manufacturers were not so rigidly divided into employers and employed.

**Social Work of the Trade Unions.** The other sphere of the trade unions in the education of their members has been social rather than individual. Here all unions, of skilled and unskilled, have taken a part. They have emphasized the idea of collective responsibility and the need for individual discipline in realizing it. Men have been taught the value of co-operation in building up the wealth and maintaining the welfare of the community of which they form a part. In the pursuit of this object the unions have promoted special colleges, e.g. the Ruskin College at Oxford (*q.v.*). Hundreds of young trade union members have been placed and maintained there by their unions for periods ranging from one to three years, and have been trained in the higher branches of knowledge, in economics and sociology. Some of these men are now at the head of their respective unions, and applying the principles taught them at Oxford to practical problems of industrial organization.

Lastly, and still in this same sense, the trade unions, by raising and applying large sums of money for the relief of sickness, unemployment, and old age, have induced a spirit of self help and independence among their members which has relieved the community of great burdens.

G. N. B.

**TRADESCANT, JOHN.**—The name of three generations of eminent gardeners, travellers, and antiquaries. The second John Tradescant came from Holland and became gardener to Charles I, and was assisted by his son, also called John. The Tradescants established the first collection of rarities in Great Britain for the purpose of public exhibition. The Museum was situated in South Lambeth, and the younger Tradescant drew up a catalogue of the exhibits in 1656, the elder Tradescant having died in 1637. This catalogue included names of birds, beasts, fishes, shell-creatures, insects, minerals, foreign fruits, etc. There were also "artificial" items (e.g. household utensils, instruments of war, curiosities of art, coins, etc.). There was also a catalogue of the plants in his botanical garden. Charles Hoole, in the *New Discovery of the Old Art of Teaching School*, 1660, suggests that London is the best place "for the full improvement of children in their education, and instances the value of the opportunity for them to visit the "rarities" of Tradescant's Museum. Elias Ashmole (1617–1692) purchased the museum, collected by the three generations of Tradescants, and removed the collection to Oxford and

presented it to the University. The Ashmolean Museum is thus built up from the nucleus of Tradescant's Museum. (See also KINNER, CYPRIAN.) F. W.

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**TRADING BY CHILDREN IN STREETS.**—(See STREET TRADING BY CHILDREN.)

**TRADITION.**—(1) The handing down of opinions, doctrines, practices, rites and customs from ancestors to posterity, by oral communication without any written memorial. "Nobody can make a tradition; it takes a century to make it" (Hawthorne). (2) In Theology, that body of doctrines and discipline supposed to have been revealed and commanded by God, but not committed to writing and therefore not incorporated in the Scriptures. By apostolic traditions are understood such points of Catholic faith and practice as, not committed to writing in the Holy Scriptures, have come down in an unbroken series of oral delivery and varied testimony from the apostolic ages. The reference to the traditions of the Pharisees in St. Matt. xv, 2, was that Moses brought down from Mount Sinai two sets of laws delivered to him by God, one of which was recorded on stone, while the other was handed down from father to son and miraculously kept until Christ's day. Traditionalism is strictly a system of philosophy in which all religious knowledge is reduced to belief in truth communicated by revelation from God. Popularly it is the habit of basing religious convictions on ecclesiastical authority and the traditional belief of the Church, not on an independent study of the Scriptures or an independent exercise of the reason.

**TRAINING COLLEGES, DAY.**—Day Training Colleges came into being in 1890–1891. For some years, concern about the qualifications and preparation of elementary teachers had been manifested. These had not kept pace with the enormous extension of the field of elementary education since the Act of 1870, nor with its internal development. In 1870 there were thirty-three residential training colleges in existence, providing places for about 2,500 students; and these had been increased only by eleven up to 1889. During the same period, the number of children in attendance had trebled. Yet there had been considerable improvement of conditions and curriculum, due largely to the School Boards, whose members had a personal interest in the efficiency of the schools which they directed. To cope with this vast extension of elementary education, the teaching body had grown from a little more than 12,000 in 1870 to more than 56,000 in 1890; but barely 20,000 had received any special training, and this impressed on educational authorities the necessity of some further provision of facilities for professional training. The pressing need of more training colleges had been urged repeatedly, but it was not till the early '80's that discussion began to assume a practical

shape and a memorial was submitted to the Education Department by the School Board for Birmingham. There were two bodies of opinion: those who favoured the immediate extension of the powers of the School Boards to found and maintain undenominational training colleges, and those who preferred that action should be delayed until education authorities could grant rate aid to all alike. The possibility of a compromise appeared in the form of a proposal to establish day training colleges.

**University Day Training Colleges.** Between 1870 and 1884 ten institutions for higher education, of which eight have since become universities, had been founded; and four great schools for the higher education of women. Thus the idea that the universities and university colleges might furnish a means of escaping from the deadlock carried much weight; and we find that the report, in 1888, of Lord Cross's Commission (*q.v.*) recommended that existing training colleges should admit day students, and university colleges not more than 200 day students. The Code of 1890 contained regulations for the recognition of day training colleges. They were required to be attached to some university or university college. Seven University Colleges responded: King's College, London; Owens College, Manchester; Durham College; Firth College, Sheffield; Mason College, Birmingham; and the University Colleges of Cardiff and Nottingham; and all but Nottingham started work forthwith. Next year Cambridge came in, and the number had grown to thirteen; the year following Oxford joined; and by 1902 the number was nineteen, with about 2,000 students. The Act of 1902 empowered education authorities to make provision for the training of teachers; and the Code of 1904 defined training colleges (*a*) as separate institutions carried on solely for training teachers; (*b*) departments of a university; or (*c*) departments of institutions devoted to higher education. According to the Board of Education's Return for 1914, the day training colleges had risen to 36, of which 20 were attached to universities or university colleges, with, in all, a grand total of 5,609 day students. The residential colleges had risen to 47, with a total of 5,338 students. Thus the day training colleges had caught up the residential colleges, a striking tribute to the innovation.

**Non-University Day Training Colleges.** Up to the Act of 1902, day training colleges were of the university type, which had considerable influence on the development of later day training colleges. In 1896 it was reported that "the establishment of day training colleges in connection with universities and university colleges has already led to good results, and one-fifth of the Queen's scholars in the First Class expressed their desire to enter one or other of them." Stress was also laid on the fact that residential and day colleges were adapted to the needs of different classes of students. In accounting for the success of the university training colleges before 1904, and of the non-university day training colleges since that date, several factors are worth noting. In place of the maintenance grant on individual students made to the residential colleges, a scholarship of £25 per annum for men and £20 per annum for women students was paid in cash to each day training college student through the college authorities, and a grant of £13 per annum per student was made to colleges themselves; special terms for the academical courses were arranged for students of the training college

departments. These things acted as an attraction to students, which became even stronger in the case of the day training colleges founded from 1904 onwards, since many educational authorities provided free places in their colleges for students whose preliminary preparation had been received in their own schools; and, even where non-local students were admitted, it was on much lower terms than in the residential colleges. During the last twenty-five years, there has been a great quickening of educational conditions and requirements, and the new training colleges were better able to suit themselves to the changed and changing conditions. Yet the professional work of the day colleges was often placed in the hands of men who had gained experience in the residential institutions, whose influence helped thus in shaping the success of their younger competitors.

**Curricula and Examinations.** The greatest difficulty was the adjustment of the claims of the Board of Education and of the universities. This was intensified by the difficulty of standardizing examinations of so many differing university types. The problem was solved by the Education Department confining its examinational jurisdiction to the professional subjects. The question of continuing the period of training until a university degree could be obtained was met by granting freely to day training college students, on recommendation, a third year's scholarship as previously to 1890 accorded to individual residential students. In 1911, a four years' course was instituted in university training colleges: three years to be devoted largely to academic studies, and the final year to professional work. This course was immediately adopted by ten colleges, and many universities decided to conduct the special final professional examination themselves. The second difficulty was connected with professional training. This was solved in a way that has since become general. The residential colleges had, as a rule, carried out the professional training of their students in a small "model" or "practising" school, generally housed in the college buildings, supplemented by formal exercises in teaching undertaken by each student, in turn, before the college staff, followed by criticism. The university colleges, to which training departments were attached, possessed no "model" schools, but were able to co-operate with the local education authorities, who placed their schools freely at their disposal. Thus the somewhat unnatural conditions of the old "practising" school were replaced by selected "Demonstration" schools in actual working under normal conditions. Here students were trained under the college staff, aided by experienced head teachers. From the outset, the day training colleges were hampered by the indifferent preparatory education of candidates for entry. The old qualifications for admission to a training college had been a First or Second Class in the Queen's (afterwards King's) Scholarship Examination. In 1899 alternative examinations were allowed, including the preliminary examinations of some of the universities. This, involving a more suitable preparation for a university course, was an advantage to the day training college; but the preparatory stage for a university course was obviously some education of a secondary type. Departmental reports referred repeatedly to the necessity of a satisfactory level of preliminary attainment, but it was left for the Report of 1903 to state in general terms that there would be no adequate provision

of a good and steady supply of elementary school teachers until the secondary schools were properly organized. The merging of the old pupil-teacher centres in secondary schools, and the gradual supersession of pupil teachers by bursars and student teachers pursuing a secondary school education for the six years preceding entry to a training college, did much to provide the type of student wanted. The day training colleges formed since 1904 are of the non-university type, being founded by education authorities under the new Education Act. These newer institutions conform pretty closely to their predecessors, though preparing students for the ordinary two years' course.

**A Forecast.** The debt of the day training colleges to the residential colleges, to the enlightened sympathy of the university authorities, and to the generosity of the education authorities, is great; yet it is of interest to note that they, in their turn, have exerted an influence on other colleges and on the general question of the preparation of teachers. The Report of 1896-1897 notes, "with satisfaction," improvements contemplated or actually made in the equipment of residential training colleges, and especially "the attention given to better instruction in the science and art of teaching." This is significant; but equally significant was the requirement by the Board of Education in 1904 that two-thirds of the staff of the newly-founded day training colleges (non-university type) should be graduates. A body of teachers of high attainments and wide experience was thus attracted to the newly-founded colleges. The residential colleges were asked to fall into line and conform to the new regulation as opportunities arose. The interest aroused by the training of elementary teachers by the universities spread to the secondary department of the national system, and, besides University Diplomas in Educational Theory and Practice, by 1911, some twenty colleges or departments for the training of secondary teachers had been brought into existence. Perhaps the most striking instance of the influence of the movement inaugurated in 1890-1891 has been the foundation of Lectureships and Chairs of Education in the universities; the limitation of the day training colleges to universities and university colleges, which at first seemed to threaten the expansion of the movement, proved in reality a source of strength and a stimulus to educational progress generally. For some few years past, owing to difficulties in the supply of suitable candidates for the teaching profession, over which they have little or no control, the colleges have been passing through a troubled period, and it is difficult to foresee any immediate development. The remark in the Report of 1908-1909 that, as the education given in secondary schools improves, training colleges will be "able to concentrate more upon that professional training *which it should be their main function to provide*," indicates, however, that any advance would lie in the direction of their becoming professional training schools. The old duplication of a general and special (*i.e.* academic and professional) training would then disappear in favour of a professional training, with such specialization as individual aptitudes justify. This is the object which the regulations of 1913 have in view; and for it, day training colleges, founded with special reference to recent educational conditions, by their greater freedom of adaptation, would seem to be in a position of advantage.

W. T. G.

**TRAINING COLLEGE STUDENTS.**—There are two senses in which a training college student is a teacher. He (she) is bound by agreement to become a teacher in a State-aided school on the completion of his (her) period of training, and during that period he (she) spends some time in actual teaching. (See TEACHERS, TRAINING OF.)

The position of a training college student on the staff of the school in which he is practising is peculiar. He receives no salary; he is not recognized as a member of the staff for purposes of grant; he usually remains no more than three weeks in any particular school; and he does not generally feel his responsibility so much to the head teacher of the school as to the training college staff. It is a great tribute to the goodwill of the established members of the profession, that students generally have a great deal of encouragement and practical sympathy extended to them.

On passing the final examination conducted by the Board of Education, or a recognized alternative examination, a training college student becomes a certificated teacher. There is no longer a period of probation, and the training college course is the last stage, officially described as such, of a teacher's training.

A brief review of the training may now be made. It is assumed that the student, on entering college, has had such a general education as befits an embryo teacher, and that the time has arrived for specialization in a two-fold sense. There is the professional or craft aspect of the work, and there is the more usual kind of specialization, the concentration of the student's attention on not less than two and not more than five branches of knowledge. The underlying idea of both these kinds of specialization is theoretically sound. In practice the plan has not been in operation long enough for its merits and demerits to reveal themselves. The days are past when a teacher can hope to be regarded as fully qualified to teach all subjects, though some years will doubtless elapse before the old style of organization is seriously altered—that style of organization which caters normally for class teachers and only rarely for subject teachers.

The curriculum of a training college need not be discussed here, except on the professional side. On the academic side it is now characterized by the aim of making the student enthusiastic about a few aspects of knowledge, and setting him on the right path for the development of his (her) knowledge so far as those aspects are concerned.

The professional side of the training college curriculum has the two aspects of all crafts; viz.: the practical and the theoretical. Assuming that theory is organized experience, it is clear that before the student can profit by the study of theory, he (she) must have sufficient experience to compare with the organized experience presented. The special point is that the student in training is, as a teacher, more of a scientific investigator, guided by the criticism of the training college staff to reflect upon his experience, than a mere craftsman learning by imitation to apply a rule-of-thumb. Good habits he must form, but he must not be bound by them. Adaptability and insight are also necessary, and these can only be acquired slowly, by much thought and repeated trial and self-examination.

The training college student, then, completes his training only in a chronological sense. In the

real sense he has only been given the opportunity of adopting the right attitude toward his work. He has not the *savour faire* of the long-established certificated teacher. He has much to learn about children, about the world, and about himself, and the training college has done its work if, on leaving it, he is willing and able to learn. A. C. C.

### TRAINING OF TEACHERS, HISTORY OF THE.

—The University (*q.v.*) as a mediaeval institution was essentially the trade or craft of teachers at a particular place, and therefore involved the procedure of apprenticeship to a master, and development of skill as an assistant, and the attainment of mastership after going through all the processes necessary for securing skill in the specialized work. It is probable that the same normal length of time of training (*viz.*, seven years) was required in the corporation or university of teachers, as in apprenticeship in other craft-gilds. Roughly speaking, up to the point of being a bachelor of arts, a youth was an apprentice, then followed an interval of three years, in which the would-be teacher was an assistant to some recognized master, after which he became a master (of Arts) himself, on completing required tests. Four years were spent in acquiring necessary knowledge in the Liberal Arts, and three years in practically assisting in the teaching of them, under the direction and criticism of a master. Only after such apprenticeship and assistantship a man became an M.A. But, when college teaching developed in the universities, individual Masters of Arts, instead of opening schools of their own, looked forward rather to association with the colleges, either in higher studies of their own, or in college-teaching; and the old competitive system of individual masters, and the training of Bachelors to become masters, died down. In 1449, however, an attempt was made to found a college to train university men to become grammar-masters, by William Bingham, at Cambridge, to be called the College of God's House, which was afterwards incorporated with Christ's College. It was designed for a master and twenty-four scholars, who were to train grammar school masters for the country at large.

**The Influence of Early Educationists.** The position occupied by Erasmus (*q.v.*) gave to his theoretical treatment and text-books much of the prestige of a trainer of teachers, and Melancthon was the "preceptor" of the preceptors of Germany. The Jesuits' Schools (*q.v.*) (founded 1540) had a prefect of studies, who superintended the work of each teacher, and heard him teach once a fortnight. Richard Mulcaster (*q.v.*), head master of Merchant Taylors' School, London, from 1561, was the first Englishman definitely to advocate a profession of trained teachers in a "seminary" (at the university) of masters. The "trade" of teaching, said Mulcaster, "requireth a particular college."

John Dury (*q.v.*), in his remarkable suggestions for a *Reformed School* (1650), seems to contemplate a system of training of teachers in each well-equipped school. The head of the school ("the governor") is to give instruction to the ushers "for every different kind of exercise and institution." Still more definitely, the governor "shall himself give an example, showing them (the teachers) at every change of exercise and different way of institution how they shall go about their work. He shall, therefore, teach the first lesson of every kind himself in the presence of his ushers,

that they may observe his way; and at the second lesson, when they shall begin their work, he shall be present at it, to observe them, how they perform it, and tell them of their faults, if any be committed." Hartlib (*q.v.*), in a letter prefixed to the *Reformed School*, urges that what is aimed at is the propagation of Reformed Schools, and for that purpose "the training up of Reformed schoolmasters is one of the chief parts of this design." The Society for the Promotion of Christian Knowledge (*q.v.*) (as early as 1707) required their schoolmasters to "communicate to every newly elected master their art and methods of teaching and of discipline"; and the "Orders" urge that a new teacher should have "liberty on certain days" to hear older masters teach, and "assist them in teaching," so as to become more expert.

**Beginnings on the Continent.** In 1684 was founded the Institute of the Brethren of the Common Life (*q.v.*) by St. Jean Baptiste de la Salle, who established in connection with it a seminary for country schoolmasters, similar to one founded in Lyons as early as 1672. In 1696, W. H. Franckei, the German founder of charity schools, established at Halle the *Seminarium Praeceptorum*, in which teachers for these schools should be trained. In 1707, he opened the *Seminarium Praeceptorum Selectum* for the training of teachers in secondary schools. After Jena in 1806, German educators sent young teachers to Yverdon to learn from Pestalozzi, and to use his methods in German training colleges. Similarly, Pestalozzi was the great influence behind training colleges in France and Spain. (See D. Eugenio García Barbarin: *Hist. de la Pedagogia Española*, p. 159.)

### The Development of Training Colleges in England.

In England, Pestalozzi's influence did not penetrate deeply till later; the earliest years of the nineteenth century mainly developed the monitorial system of Bell and Lancaster (*qq.v.*). Bell confessedly derived his ideas from native systems of teaching in India, and it is to be noted that a monitorial system had prevailed in the old grammar schools: *e.g.* in the statutes of Manchester Grammar School (1524), and in the statutes of Thomas Popeson at Bungay (1592). Training at Borough Road, Southwark, where Lancaster's school was situated, began in 1805 with monitors, but eventually schoolmasters came "for three months" to "learn the system." Lancaster established a branch school in Somerset as early as 1806. The first Principal of Borough Road Normal School was Dr. Cornwell (1839-56). In 1841 St. Mark's College, Chelsea; St. John's, Battersea, in 1844; and Whitelands College for mistresses—were established by the National Society. In 1846 the pupil-teacher apprenticeship system (*q.v.*) was introduced into England by Sir J. Kay-Shuttleworth (*q.v.*) from Holland to supersede the monitorial system. By a scheme of national (called Queen's) scholarships, the best pupil-teachers (chosen by a national competition) qualified for the "places" in the various training colleges for both men and women. University day training colleges were established in 1890 for men and women students attached to a university college, in which they pursue their academic studies for a degree, and receive training either concurrently or in a year after taking the degree. There is usually a department for the training of secondary teachers in these colleges. (For secondary training colleges for women, see EDUCATION SINCE 1800, GENERAL SURVEY OF.) There is a secondary training



*Photo by Aeroflms, Ltd.*

*Tonbridge School*

PLATE XCI



College for Teachers in the University of Oxford. The first secondary training college for men was the Finsbury Training College. (See BOWEN, H.; HAMILTON, SIR W.) See also articles on the various Training Colleges under their separate titles.

F. W.

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#### TRAINING OF TEACHERS (SCOTLAND), THE.

—Dates no further back than 1840, when the first training college was opened in Glasgow under the auspices of the Church of Scotland. Its founder, David Stow, "came out" at the Disruption, and established the Free Church Normal School (Glasgow) in 1845. Similar colleges were provided in Edinburgh (1846-8), and by 1855 the four colleges had trained 2,193 teachers in all. An Episcopal College was founded in Edinburgh in 1855, and, after the Education Act of 1872, colleges were opened in Aberdeen by the Church of Scotland (1874), and the Free Church (1875). The list was completed by the Roman Catholic College (Glasgow) in 1885. From 1873 onward the better students were allowed to attend university classes. Conversely, from 1895 university students, called Queen's (later King's) students, were allowed to combine with their undergraduate studies a practical course in certain selected schools. The trend of movement being meantime toward public direction of all departments of education, the denominational training colleges were absorbed in a State system inaugurated in 1905. Four provincial committees were established in the four university seats to take over the colleges and unify and complete the whole system of training. These committees are representative (a) of all educational interests except the small denominational institutions, which have elected to remain outside, and (b) of the territorial areas of the several universities. Their membership, which at first averaged about forty, has by recent minute (1920) been reduced to some twenty-five. By the same minute, a national committee acting through a central executive committee has been established to co-ordinate and direct the operations of the four provincial committees. With the exception of 7 to 8 per cent., all students in training are under the provincial committees. Preliminary training is provided by a system of junior student centres, *i.e.* higher grade and secondary schools with special educational arrangements for pupils who have been accepted as candidates for the profession. The junior student is the modern counterpart of the obsolete pupil teacher. The tendency now is to transfer the emphasis from mere practice of teaching to general education, with a curriculum of a more academic and disciplinary character; but complaint is frequent of the lack of practical skill in entrants to the profession.

**The Part Played by the Universities.** Expectations have not yet been quite fulfilled in regard to the part to be played by the universities. While certain members of their staffs are by arrangement retained also by the training centres, there is no

organic relation between the two institutions. Some students take their training as a post graduate course, some as a concurrent course, but, apart from these points of contact, either institution pursues its independent way. The normal course is two years, but for graduates and a few others, one. Appropriate courses are provided not only for elementary, but also for secondary teachers, and for those taking up "special" branches: domestic, art, manual work, etc. All the courses are very much crowded. The provincial committees have done a great deal to develop the possibilities of the situation, including the provision of improved buildings and hostels. Their operations are all subject to approval by the Scotch Education Department, which exercises strict financial control. Some 2,500 students are in training, about half that number passing out each year. The proportion of women to men is at least four to one. No teachers' register exists for Scotland; its place is supplied by the Department's certification, without which the training cannot be said to have been completed. The full certificate is granted only after a probationary period of service in a school, generally two years.

J. C. CLARKE.

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**TRANSLATION.**—Translation, or the reproduction in one language of what was written in another, may be viewed from three aspects: as an instrument of study, as an adjunct to study, or as a substitute therefor. For the acquisition of foreign languages and for the comprehension of their literature, it is, at least in the earlier stages, an indispensable instrument. The "direct method," however great its advantages, cannot be employed alone. How far translation into the foreign language ("composition") should enter into schemes of study depends upon circumstances, but all agree that its practice gives a second grip on the language. In both, translation should aim at being idiomatic; in composition this is all important. "Literal," or word for word translation is required for a proper comprehension of a foreign tongue, especially when this, like German or still more like Greek and Latin, differs widely in grammatical structure from our own. How translation is an adjunct to study may be seen from the Didot editions of Greek authors or the Loeb Classical Library, where a Latin or English translation appears concurrently with the original. Those who are neither completely masters nor wholly ignorant of the foreign language (that is, the great majority of students) may thus use translation to economize labour or to avoid mistakes. The essential characteristics of translation are most apparent when it is considered as a substitute for an original. Professional translators are apt in practice, if not in theory, to confuse translations with "paraphrase" (really a sort of annotation), or again with "adaptation" or "imitation." All of these imply alteration; and to alter is to fail to translate. The first and last duty of a translator is *fidelity* in the highest sense; for literal, bald or



unidiomatic rendering is really unfaithful. In scientific and technical writings the requisite fidelity is not difficult to attain, as the terms usually correspond and style matters but little. But in philosophical, oratorical, descriptive, and above all in poetical composition, the diverse grouping of ideas under expressions, the lack of corresponding terms or, most frequently, their imperfect correspondence, together with deep-seated differences of grammatical structure and literary quality, tax the highest powers of the translator, even if he has a perfect knowledge of the foreign tongue and a complete command over his own. The faithful translator will beware of importing himself into his rendering—or correcting or improving his original. As Rossetti says, this “is not in the bond.” He will not blench before the charge that his work reads “like a translation,” that is like itself, nor pursue an easy elegance that obliterates distinctions of authorship, age and nationality, and for example makes Caesar write like “our correspondent at the front.”

**The Rendering of Verse.** He will recognize it as fundamental that the distinctive form and proportions of the original must be preserved. Prose, therefore, will be represented by prose and verse by verse. But inasmuch as few translators have leisure or capacity for producing verse, prose is by custom allowed in its stead. This, however, should not be the ordinary prose, but a variety specially modified to evoke the associations of verse. While not actually metrical, it should carry suggestions of metre and thus admit poetic diction without a sense of incongruity. If verse is employed, the form should be that which intrinsically, that is to say, in its proper character and associations, corresponds best to the original, merely external resemblance being disregarded. Thus the true equivalent of the French Alexandrine is the ten-syllable—not the twelve-syllable—line of English; and the same, not the so called “accentual” hexameter, is the proper representation of the classical quantitative hexameter. Rhyme may be used in two cases: to render rhyme in the original, and single rhymes also to indicate the unity of a couplet or of a stanza in an unrhymed original. A serious hindrance in its use is the poverty and erratic distribution of rhyme-words in English. For example the *terza rima* of the *Divina Commedia* cannot be reproduced without substantial injury to the poem. Outside these limits rhyme is a superfluous encumbrance to translation. The proper metre being found, it must be employed undeviatingly and without regard to the subject of the composition—a rule often neglected, e.g. by translators of Horace’s *Odes*.

Since a translation should be commensurate with its original, the “carrying capacities” of the respective measures should be carefully ascertained and consistently regarded, the translator working, so to speak, to scale. A certain margin may be allowed, but translators usually take too much.

J. P. P.

**TRANSVAAL, EDUCATION IN.**—(See SOUTH AFRICA, THE EDUCATIONAL SYSTEM OF.)

**TRAVEL CENTRES ABROAD.**—The application of the principle of co-operation to foreign travel by the founders of the Toynbee Travellers’ Club in 1888, opened up new possibilities to the teaching profession. The elementary school teacher

hitherto debarred from the advantages of personal contact with the exalted beauty of Italian art amid the local scenes and habitations that saw its birth, is now enabled to spend his or her brief vacation in Florence, Rome or Venice, and return with outlook widened, mind refreshed and the artistic sense stimulated. Organization and facilities have since been improved, and now any small body of teachers that can muster a unit of from twenty-five to thirty travellers may avail itself of methods which are inexpensive, simple and effective, and which may be initiated by application to the Continental Manager of any railway company that runs continental services. Direct negotiations with second-class hotels of good repute, which may be selected from guide books of established reputation, will secure accommodation, and though a working knowledge of Italian is desirable, it is by no means essential as recent developments have made a knowledge of English universal among Italian hotel managers and servants.

This is, however, but one aspect of an organizer’s task. The eye beholds and the mind apprehends what they have been trained to behold or apprehend. Careful preparation by lectures, or by systematic reading, on the art and history of the city to be visited should precede the journey. No difficulty will be found in obtaining help and counsel from authorities on the different branches of the subject, and a new type of travel literature is now available in the Mediaeval Towns Series published by Dent & Sons, the Historical Guides initiated by Grant Allen, and similar publications. Smaller groups of travellers who are unable, or unwilling, to join associated parties should form preliminary private reading circles of their own. If any educational result of value is to be obtained, the subject should never be hastily and superficially got up during a hurried train journey. The importance attached to the educational value of foreign travel in earlier days may be seen by a perusal of the “instructions” and “manuals” published during the sixteenth, seventeenth and eighteenth centuries, such as Leigh’s *Hints for Travellers*, Howell’s *Instructions for forreine travell*, and Bishop Hurd’s *Dialogue on the uses of Foreign Travel between Lord Shaftesbury and Mr. Locke*.

**Florence.** First in importance among Italian travel centres stands Florence, the classic land of Italian art; for there, more than elsewhere, says Vasari, men become perfected in all the arts, and especially in painting. Setting aside the elusive, almost legendary figure of Cimabue, the whole range of the most important school of Christian painting from Giotto to Andrea del Sarto may there alone be adequately studied. There, too, the development of Renaissance sculpture from the Pisani to Michael Angelo, of architecture, from Arnolfo del Cambio and Brunelleschi to the builders of the massy Florentine palaces, may be fully appreciated. Furthermore, this, the most triumphant commonwealth of Italy, whose rulers were her merchants and craftsmen, by reason of her intellectual predominance is no less important in the realm of literature. There was born and nurtured the All Father of modern poetry, Dante, who, with his successors, Boccaccio and Petrarch, deeply coloured the stream of English literature from Chaucer to Spenser and Milton. Her history is the most dramatic of all the Italian States.

**Venice.** Equal in interest to the mercantile and industrial republic of Florence is the great maritime state of Venice. The story of her rise from a few harassed fugitives who settled on the squalid lagoons and mud banks of the Adrian gulf to a wealthy commonwealth that for centuries held the hegemony of the seas; her political constitution, long regarded as the culmination of wise statecraft, will form congenial studies for the English traveller. Although Venice has produced no Dante, nor even an Ariosto, the many romantic and tragic chapters in her history have quickened the imagination of English poets. Her art, as the traveller will soon discover, lacks that originality, idealism and spirituality which he found in the works of the Florentine masters. It is characterized by a sensuous delight in voluptuous form and rich colour that appealed to wealthy merchant princes; it culminated in that apotheosis of civic pomp and pride—the grandiose decorations of the Ducal Palace. East and West met at Venice, and the student will be able to trace the influence of Oriental art on her architecture, and to contrast the evolution of graceful and charming palatial houses in sea-girt and oligarchical Venice with the grim fortress-like palaces of faction-torn Florence.

**Rome.** It is a doubtful point, which the traveller must himself determine, whether the educative effect of a short visit to Rome is sufficient to compensate for the fatigue and expense of the journey. The writer's experience is, that a brief vacation may be more profitably spent at the hill cities of Siena and Perugia with their important local schools of painting; and at Assisi, hallowed by memories of St. Francis. The vast range of Roman history—classical, mediæval, papal, and modern, the large area covered by the city—militate against a fleeting visit. Unlike Venice, the least changed of Italian cities, Rome is an essentially modernized metropolis, and the archaeological erudition necessary to evoke ancient Rome from the excavated, tidied up fragments of Forum and Palatine is not easy to acquire. At some future time, perchance, education authorities may be enlightened enough to institute a teachers' Jubilee, to be celebrated by a three or six months vacation that may enable the stale and tired pedagogue to win refreshment and renewed vigour by an extended range of foreign travel: it would be a good investment for the State.

**Paris.** The traveller who contemplates a visit to Paris will be drawn in opposite directions by the spell of her historic past and the attraction of her brilliant present. His aim being an educational one, he will come equipped with the necessary historic knowledge, and in no other city in Europe will he feel more keenly that *sentiment d'histoire*, that stimulus to his historic imagination, which it is the purpose of travel to evoke than when he paces the few acres of earth that constitute the *Île de la Cité* of Paris; when he stands on ground where a temple of Jupiter gave place to a Christian fane; where a modern judge or magistrate administers justice on the spot where, 2,000 years before, a Roman Praetor set up his Court; and where the Revolutionary Tribunal held its awful assize of blood. Despite the devastating effects of modern improvements, much more remains of Roman, mediæval, and revolutionary Paris than the ordinary traveller is aware of. Certain of those

remains which the patient industry and civic piety of the Marquis de Rochegude have marked for us in his *Guide Pratique à travers le vieux Paris*, have disappeared since 1903; but any traveller who will follow that excellent cicerone will be surprised at the wealth of historic interest that lies hidden behind modern buildings, and in the nooks and corners of old Paris. The importance of Paris in the history of Gothic architecture, in the rise and development of modern painting and sculpture, there is small need to dwell upon. It is only perhaps necessary to call the traveller's attention to the growing importance of the collection of paintings in the Louvre illustrating the little known school of French *Primitifs*, which the Exhibition of 1904 brought into prominence.

**Nuremberg.** Which of the many capital cities of Germany shall the teacher choose for a brief vacation? Undoubtedly Nuremberg, the once free Imperial city; the great emporium of Germany and the distributing centre for trade between Venice and the Levant and northern and western Europe; "the London and Middlesex of Germany" as Carlyle called her; the city of Albert Dürer and of Hans Sachs, of Adam Kraft and Peter Vischer. Ruled by a wealthy oligarchy of traders, her civic constitution has many analogies with that of Venice; her association with the Republic of St. Mark was of the closest, as the many winged-lions sculptured on her houses still prove; she rose in wealth and power with Venice; she shared in her decadence when the discovery of the Cape Route to India and of America shifted the centre of commerce to other shores. Added to these absorbing interests, and by no means second to them, Nuremberg was the great art centre of Germany; the finest examples of German gothic in sculpture and architecture are there preserved, and the most beautiful examples of German handicraft in metal and in typography. Indeed Peter Vischer's shrine of St. Sebald is unsurpassed even in Italy. T. O.

**TRAVELLING SCHOOLS.**—In the seventeenth and eighteenth centuries the Society for Promoting Christian Knowledge (*q.v.*) established a number of charity schools in Wales, and finding them inadequate, introduced the plan of sending teachers through the country to teach in districts where permanent schools had not been established. The chief organizer of this system of "circulating" schools was the Rev. G. Jones, Rector of Llanddowror, Carmarthen. The master appointed obtained permission to use a building in a village, where he gave, without charge, instruction in reading the Bible to children by day and to adults in the evening. When satisfactory results had been obtained, he moved to another convenient centre to continue his work. Many thousands were taught in these temporary schools, and, when the Rev. G. Jones died in 1761, he left money for the continuation of the work.

Similar schools were common in the New England colonies in the early eighteenth century. There the village school was taught by the master for the whole year, but, as the village grew into a town, it was located in different parts of the town in different parts of the year.

**TREITSCHKE, HEINRICH GOTTHARD VON** (1834–1896).—Was Professor of History at Berlin University from 1874 to 1896, and left a deep mark on the history of German politics. His lectures

were attended by soldiers and administrators as well as by students, and his version of German history and interpretation of political theory greatly influenced the German mind during the twenty years after his death. He wrote a *German History in the Nineteenth Century* to show that Prussia was the chosen nation of Germany, and to promote the Prussianization of Germany. He would have preferred the incorporation of all Germany into Prussia rather than the federal empire formed in 1871. His *Politik*, in two volumes, based on his lectures from 1874, advocates the principles that "the State is Power," and "war is politics *par excellence*"; the German nation must be supreme and the only sovereign of its destinies, and must freely and for itself determine its place in the world. His doctrines left all decisions of international disputes not to justice but to the arbitrament of the sword.

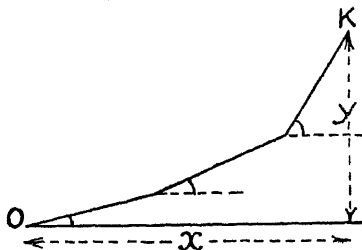
**TRIGONOMETRY.**—Rich as the nineteenth century was in mathematical thought, little was done for elementary teaching. With the dawn of the new century came upheaval; Trigonometry is no longer to be taught as an abstract science, but as a tool fashioned to the hand of the engineer, scientist, or general reader. To appreciate this change, look back at the time when the angles  $45^\circ$ ,  $30^\circ$ , and  $60^\circ$  reigned supreme, before their deposition by 4-figure tables.

The study of Trigonometry is begun at an earlier age than was the case twenty years ago, and takes the place then occupied by complicated fractions in Algebra. Before approaching the subject, a pupil should have experience of practical geometry and of graphs; and as he proceeds he will require to use logarithms and to make drawings to represent figures in three dimensions. As a subject of education, Trigonometry may be divided into two courses: the first, arithmetical in treatment, is a subject of general education; the second, algebraical in treatment, is chiefly for the specialist.

**The General Course.** This general course would begin with: The tangent, sine, and cosine of acute angles, with applications to many and varied problems involving right-angled or isosceles triangles. Plenty of time should be given to this; tables of all three ratios should be used. The other three ratios may with advantage be left till later—

calculations with  $\frac{1}{\text{sine}}$ , etc., give useful practice in logarithms.

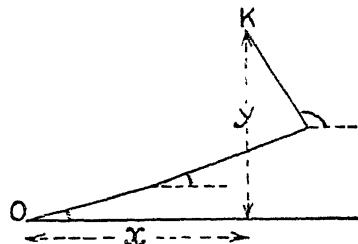
Next, a consideration of the traverse of a survey (or the course of a ship or tunnel), with the fixing of the final point K, leads to the use of the trigonometrical ratios of obtuse angles; such problems



show the necessity for these angles, and the reason for the sign. The formal "proof" of the sign of the ratios of large angles, obtained from the quadrants

of a circle, is unsatisfying to the learner and artificial. (Here we would protest against all examples which connect  $115^\circ$  with  $25^\circ$  instead of with its supplement  $65^\circ$ ; and we could plead again for the inclusion of a table of cosines.)

Familiarity with the use of obtuse angles enables the pupil to attack the solution of triangles and the



proofs of the two important formulae, the "sine-formula,"  $\frac{\sin A}{a} = \frac{\sin B}{b} = \frac{\sin C}{c}$ , and the "cosine-

formula" in its two forms,  $\cos A = \frac{b^2 + c^2 - a^2}{2bc}$ , and  $a^2 = b^2 + c^2 - 2bc \cos A$ . The formula  $\Delta = \sqrt{s(s-a)(s-b)(s-c)}$ , and those for  $\sin \frac{A}{2}$ ,

$\cos \frac{A}{2}$ ,  $\tan \frac{A}{2}$ , should be used, but insistence on their proofs may well be left to the later presentation of the subject. We should like to see the haversine-formula,

$$\begin{aligned} \text{hav } A \left( = \text{half-versin } A = \frac{1 - \cos A}{2} \right) \\ = \frac{(s-b)(s-c)}{bc}, \end{aligned}$$

which is so useful in navigation, take its place among the simple formulae of the triangle, and tables of haversines (natural and logarithmic) given in 4-figure tables.

This course will naturally include *easy* identities, the consideration of small angles (from the arc of a circle), graphs of the sine, cosine, and tangent; and such simple exercises in generalization as "express the radius of the in-circle in terms of the base and base-angles of a triangle." We would emphasize the necessity in the early stages of using figures drawn to scale as checks on calculations, and the importance of paying special attention to three-dimensional problems (in most cases, considering only horizontal and vertical angles). The primary necessity of this course is practice in easy problems. Practical examples in simple surveying, based on observations made by the pupils themselves, are of special use and interest. For example, instead of the tedious type of traverse question suggested above, take a "closed" traverse round a field (or across some fields), letting the pupils observe the angles and pace the distances; then calculate the total northing and easting of the final point (which is also the start); if the observations are absolutely accurate, these should each be zero.

**The Special Course and Spherical Trigonometry.** The second course in Elementary Trigonometry will be a formal presentation of the subject. It will deal with the ratios of compound angles, with proofs of the formulae and such others as those for  $\sin \frac{A}{2}$  and  $\tan \frac{B-C}{2}$ , and with a fuller consideration

of the periodicity of the trigonometrical ratios and their graphs. This leads to more specialized work with compound angles, special properties connected with the "modern geometry" of the triangle, and eventually to the consideration of complex quantities and trigonometrical expansions and series.

Spherical Trigonometry must, in practice, be treated as a subject apart. The general reader should have had practice in drawing spheres, and be able to mark thereon meridians of longitude and parallels of latitude; and he should have had sufficient practice in three-dimensional problems to visualize his drawings. This experience will enable the expert to cope with the principles used in, and the problems presented by, his special subject, Astronomy or Navigation. F. W. D.

**TRIMMER, MRS.** (*née* Sarah Kirby).—Was born at Ipswich in 1741, and carefully educated there until at 14 years of age she was taken to London, where she met Dr. Johnson and spent much time in study. She married in 1762 and settled at Brentford. She educated her own children (twelve in number), and her difficulties in obtaining suitable school-books for young children led her to become an authoress; and a biographer (C. L. Balfour, 1854) says, "she is the only one, of all our popular modern writers on education, that had a mother's experience." Her first book was *An Easy Introduction to the Knowledge of Nature*. She established Sunday Schools in Brentford, and schools of industry for the poor, and wrote *The Economy of Charity* to show that the best help that could be afforded to people was to teach them to help themselves. Her *Journal* shows that many of the plans now organized in elementary education were adopted by her long before they were generally known. She taught young children by means of pictures, she gave simple explanations, elicited remarks and inquiry and encouraged conversation, and avoided wearisome set lessons. Her *Story of the Robins* is still a popular reading book among young children. She died in 1810.

**TRINITY COLLEGE, DUBLIN.**—Trinity College was founded "near Dublin" by a charter of Queen Elizabeth, 21st December, 1591, the objects being "the education, training and instruction of youths and students... that they may be the better assisted in the study of the liberal arts, and in the cultivation of virtue and religion." Its constitution, speaking generally, was modelled on that of Cambridge. It is, however, both a College and a University—the latter being sometimes legally described as the University of Trinity College, Dublin.

During the seventeenth century among many graduates of lesser distinction, Archbishop Ussher, Dean Swift, and William Congreve, the dramatist, deserve mention. Noteworthy, too, is the fact that in 1601, after the battle of Kinsale, the English army in Munster subscribed £1,800 from the arrears of their pay to purchase books for the College. Later, the officers and soldiers of the Cromwellian army in Ireland, wishing to emulate those of Elizabeth, actually subscribed £22,000 to purchase for the college the library of Archbishop Ussher.

In this century professorships were established in Divinity, Mathematics, Law, and Medicine, and it was ordered in 1664 that "none be admitted

Bachelor of Arts who has not a certificate from one of the Greek lecturers of his knowledge of Greek."

The eighteenth century saw a remarkable development in the activities of the college. In 1731 the Duke of Dorset, the Lord Lieutenant, set the fashion for the nobility and gentry, by entering his son, Lord George Sackville, as a student, and the number of entrances, which had been under seventy per annum, now rose to over 100, and included young men of the best classes. Soon after this the renowned College Historical Society came into being, at first as a club of which Edmund Burke was the most prominent member. This was in 1747; the society, which received its present name in 1770, still possesses the minutes of the original society in Burke's own hand.

Foremost among the distinguished graduates of this century we find Berkeley, Burke and Goldsmith, and, in the Irish Parliament, Curran, Flood and Grattan. Of the leaders of the Rebellion of 1798, Trinity College had its full share: T. A. Emmett and Wolfe Tone had both been scholars, and Robert Emmett a student.

During this century, too, the College showed that toleration in religious matters, which has been its prominent characteristic, whether in comparison with Government legislation or with Oxford or Cambridge. By tacit consent Nonconformists and Roman Catholics were long allowed to take the full College course, their non-attendance at Chapel being connived at. More than that, Roman Catholics had even been elected scholars in defiance of the statutes. Nonconformists could take the degree, as, unlike Oxford and Cambridge, Dublin did not require the acceptance of the thirty-nine articles; but the Roman Catholics, who could not take the oath against Popery, were thereby debarred from having the degree actually conferred at commencements. In 1793, an Act was passed by the Irish Parliament, restoring to Roman Catholics the elective franchise, and enabling them to take the degree, provided the necessary changes were made in the College statutes. This had been supported by a petition from the Junior Fellows, and the requisite changes were made, the oath being abolished and at the same time the rules with reference to attendance on religious instruction being formally relaxed in reference to all but members of the Church of Ireland.

It was fortunate for Trinity College that this change was carried out under an Irish Parliament before the Union, for the British Parliament refused Catholic Emancipation up to nearly forty years later.

For Scholarships and Fellowships, however, the test remained obligatory until 1873, when Fawcett's Act abolished tests for all University and College offices except those connected with the Divinity School. This change was loyally supported by the College authorities, but, as the Roman Hierarchy discouraged members of their flocks from entering, it has had less practical effect than was hoped and expected.

In the nineteenth century, Sir William Rowan Hamilton stands out supreme as a mathematician worthy to rank with Newton and Laplace. Far behind these, but one of the great founders of modern theories of the ether, comes McCullagh, and with him should be named FitzGerald, whose untimely death occurred less than two months after the century had closed. The two Lloyds and Salmon were great Provosts, though the latter

was somewhat reactionary. Towards the end of the century the intellectual activities of the College became classical rather than mathematical.

**Constitution of the University and College.** The University is little more than an aspect of the College. The Senate of the University cannot originate anything; it can only consider "Graces" sent to it by the governing body of the College. Even these it can only accept or reject; it cannot modify them without the permission of the Board. Since 1873, however, the Senate elects representatives on the University Council—but less than one-fourth of the whole number, the remainder being representative of the College staff. This Council nominates to Professorships, the Board having, however, a right of veto; and, in regard to changes in the Arts courses, it has powers co-ordinate with those of the Council—either can initiate changes, and all changes must be passed by both.

Originally the College was governed by the whole Society of Fellows, but, very early in the seventeenth century, Provost Temple made a statute that the seven senior Fellows should, with the Provost, be the sole governors. The Provost is nominated by the Crown customarily from among the Fellows. In 1911, the Board was enlarged, by Letters Patent, to include two elected representatives of the Junior Fellows and two of the Professors, and the power of making and altering their own statutes was restored to the College.

The election to Fellowship is for life, subject only to good behaviour. A Fellow rises by seniority to the various grades of a tutor, and is classed as a Junior Fellow until, by lapse of time, he becomes one of the seven most senior, whose duties are administrative, not tutorial.

Until 1865 all Fellows, with the exception of an occasional *Jurist* or *Medicus*, were obliged to take Holy Orders. Of those elected since, but four have been ordained. The Celibacy statute was repealed in 1840. Before 1811, when the statute was strengthened, the wives of married Fellows were received in Society by their maiden names.

The old Fellowship Examination, which in the past served its purpose sufficiently well, has now (1920) been displaced by a modification in which due weight is given to original work and capacity for research.

In the Arts side of the College, the pupil, on entering, is placed under the care of one of the sixteen or seventeen tutors. The instruction is given by the tutors generally, but also by the professors, and, while it may happen that a pupil never attends his tutor's lectures, all his College interests, whether Arts or professional, are under the tutor's care.

The course consists of two Freshman years (the first of which may be omitted by those who can pass its final examination), and two Sophister years, in each of which one examination must be passed, including the Final Freshman and the Degree, but the four other necessary terms may be kept either by lectures or examinations, so that residence is not theoretically required for the Arts degree. The explanation of this is interesting. Up to 1847, the rule required students to keep each of the six Freshman and six Sophister terms by attendance on lectures, and to keep examinations in four of each six terms. No exceptions were

allowed over the rule as to lectures, and hence in cases of hardship the lecturers gave credit for attendance on lectures missed through illness, etc., and this was gradually so extended that the rule was for many years a dead letter, and the numbers attending lectures decreased so greatly that a remedy had to be found. As Dublin was at that time the only university in the Kingdom which gave degrees without residence, and as many able men availed themselves of this privilege, it was not thought well, or even possible, to revert to the old rule, and students were encouraged to attend by being allowed to substitute two lecture terms for examinations.

On the whole the government of the College has shown a noteworthy liberality and enterprise in adapting the College to the needs of the times. It is, indeed, easy to explain this. Dublin is not only an academic centre: it is also a capital. The College was, from its inception, in the closest touch with the professions. During the three centuries of its existence, Senior Fellows have lived in close and constant intercourse with the men of the great world outside the academic walls, the politicians, the statesmen, the great legal luminaries, the divines, and the physicians—men who had, for the most part, been their pupils or their fellow-students in College. Thus they were kept in touch with the national needs, and the intellectual life of the College was saved from falling into the narrow ruts of mere scholarship. Thus Trinity College escaped the stagnation which settled on the two great English universities during the eighteenth century. When, after the unfavourable Reports of the Royal Commissioners of 1851 on Oxford and Cambridge, it was thought desirable that a commission inquired into the condition of Trinity College, the result was a splendid vindication of the College. While a number of minor suggestions were made, the summing up was "that numerous improvements of an important character have been from time to time introduced by the authorities of the College, and that the general state of the university is satisfactory. There is great activity and efficiency in the different departments, and the spirit of improvement has been specially shown in the changes which have been introduced in the course of education to adapt it to the requirements of the age." It was principally to the enterprise of Provost Lloyd, appointed in 1837, that this very favourable condition was due.

Women were admitted to special examinations in 1870; in 1896 they were admitted to certain Honour examinations, and in 1904 a King's letter was obtained admitting them to all college lectures and examinations, except Fellowship, on identical terms with men. Special scholarships are awarded to them, as was done for Roman Catholics before 1873.

**The Studies.** The Arts year begins in October. There are three terms: 10th October to 20th December; 10th January to 25th March; 15th April to 30th June. The college lectures are at the close of the term examinations, and are divided into Ordinary, Honour, and Professional; the first, which are *tutorial*, being intended to prepare the students for the ordinary examinations, the two latter being co-ordinated with the Honour examinations, which are held at the commencement of the succeeding term, the interval between the terms being intended to enable the students to consolidate,

by private study, what they have learned at lectures. Ordinary Degree examinations are, however, held at the close of the Trinity and Michaelmas terms (*i.e.* in June and December). A student must keep two out of the three terms in each of the four years.

The full course is four years, but students are permitted to omit the first year if they can pass the examination at its close. For the first two or Freshman years, the subjects are compulsory on all students and include English, Latin and one other language (Greek ceased to be a compulsory subject in 1904), geometry, arithmetic, algebra trigonometry, logic and mechanics. In the last two or Sophister years, there is a wide choice of modern subjects, no subject being compulsory on all students.

Certain privileges of omission are granted to Professional Students in consideration of their other studies; also to students in Honours—especially in the last year to those who take Moderatorships, (*i.e.* Honour Degrees), which may now be taken in ten subjects, *viz.*: Mathematics, classics, mental and moral philosophy, experimental science, natural science, history and political science, modern literature, legal and political science, engineering science, Celtic languages. The circle of Arts studies has been ever widening, and considerable changes are under consideration.

The principal professional schools are divinity, law, medicine and dentistry, engineering. There are minor schools for Indian Civil Service, education (for secondary teachers only), and agriculture.

The clubs and societies are a very important feature of the College life. Besides the Historical Society, there are, of literary and debating societies, the Philosophical, the Theological, the Elizabethan (for women) and the Neophyte; the College Classical Society; of Scientific, the Biological, the Experimental Science, and the Engineering. There is a Choral Society and a Church Musical Society. There is an Athletic Union, combining a number of clubs for the various sports. All these societies have a big vigorous life.

**The Buildings and Equipment.** The buildings of the College are worthy of its ancient reputation. The library (1712) containing over 300,000 volumes, including unique treasures of Irish Art, of which the most renowned is the *Book of Kells*; the Public Theatre (1787); the Chapel (1798); the Dining Hall (1740); and the West Front (1759), are the most remarkable of the old buildings. The fine Graduates' Memorial Buildings were built from the subscriptions received on the occasion of the Ter-centenary in 1893. The museums and the buildings of the Medical and Engineering Schools are very striking. So also are the new laboratories, the gift of Viscount Iveagh.

**The Future of Trinity College.** The effects of the great European War on the numbers of the students are incomparably greater and more permanent than those of the Boer war. Beside this depletion, there will be dangers peculiar to Ireland when the time comes to determine the question of its internal relations under Home Rule. In that respect, indeed, Trinity College showed an unexpected breadth of view. When the Home Rule Bill was introduced, and an amendment to exclude the College from the scope of the Bill was accepted by the Government, an emphatic protest was entered by a majority of the staff, with the happy result that, while certain

safeguards were inserted in the Act with the cordial approval of the Nationalist leader, the College was, in other respects, put under the control of the Irish Parliament. It was thus made evident that the younger and more vigorous among the staff realized that the life of a university must have its roots in the life of the people.

Whatever the future may hold in store, we may feel assured that the national recognition of the importance of education will be increased. In all probability, there will be considerable changes; we shall examine our methods more earnestly, that we may do better in the future than in the past. In that effort we are entitled to hope that Trinity College will at least maintain her high reputation, and that, as she has in the past been the pioneer in so many important innovations, so, in the future, she will not be behindhand in the path of progress, efficiency and culture.

E. P. C.

**TRIPOS.**—This is the name given to the examination for honours at Cambridge University. Candidates for Honours must pass the Previous Examination, or Little-go, for the Ordinary B.A. degree, with certain additional mathematical subjects. This is usually done in the first year of residence, and the candidate is then exempt from all further examinations until he takes the tripos. The honours subjects are mathematics, classics, moral sciences, law, theology, history, semitic languages, Indian languages, mediaeval and modern languages. The examination is of long standing, and lists since 1747 have been preserved in the Mathematical Tripos. The Classical Tripos was introduced in 1824, and the others since that date. Until 1850 it was necessary for candidates for classical honours to obtain first a place in the Mathematical Tripos. The general system governing these examinations was established in 1882. The Mathematical Tripos is divided into two parts, and until 1906 the successful candidates in the first part were arranged in three classes and known as Wranglers, Senior Optimes, and Junior Optimes. The first part takes place in May of a student's third year, and only those who obtain honours in it may proceed to the second part a year later. In the second part excellence in two of eight divisions entitles a candidate to honours. The Classical Tripos is in two parts, the first for general classical scholarship, to which in the second part are added one or two subjects selected from ancient philosophy, history, archaeology and philology. The first part of the Classical Tripos is taken in the second or third year of residence, and the second part in the third or fourth year. (See CAMBRIDGE, THE UNIVERSITY OF.)

**TRIVIUM.**—(See ARTS, THE SEVEN LIBERAL.)

**TROPICAL MEDICINE, THE LONDON SCHOOL OF.**—In 1898, Mr. Chamberlain, Secretary of State for the Colonies, being struck by the high rate of mortality and invaliding among Europeans in the tropical colonies and protectorates of the Empire, and the consequent suffering, impaired administrative efficiency, and great expense, addressed an appeal to the various medical teaching institutions of the kingdom to devote special attention to the instruction of students in tropical medicine and sanitation, subjects which, he conceived, had not received hitherto in this country that attention

which our vast tropical interests demanded. At the same time he requested the Seamen's Hospital Society, whose hospitals and opportunities were specially suitable for the purpose, to open in connection with their branch hospital at the Royal Albert Docks, a school to be entirely devoted to the teaching and study of tropical medicine, and offered on behalf of the Treasury a sum of £3,000 towards the cost of the necessary buildings. The authorities of the Society consenting, an appeal was made to the public for additional funds; and, a liberal response having been made, the Society, after securing the co-operation of a teaching staff, opened the London School of Tropical Medicine on 1st October, 1899.

The number of students, at first small, gradually increased until classes of from 50 to 60 were not unusual, amounting to an average annual attendance of over 170. The aggregate number who had passed through the school from its opening to July, 1914, amounted to 1,771. The original laboratory was planned for a class of 20. It was soon found that additional accommodation had to be provided. Three considerable extensions have been made to the laboratories, classrooms, museums, library, and hostel. The general laboratory can now accommodate 60 students; the special laboratories for Protozoology, Helminthology, Entomology, and Sanitation from 10 to 20 each; and the hostel, 20.

Considerable sums of money have been given to the school both for general and specific purposes, such as expeditions to the tropics for the study of points in Tropical Pathology, as well as for prizes and scholarships. The general financial position is satisfactory.

**Organization, and Scope of the Work Accomplished.** The School is open to graduates (male and female) of reputable universities and colleges—British or other. Officers of the Colonial Medical Service on nomination are required to attend the London School of Tropical Medicine or the kindred institution in Liverpool for at least one session, and to pass the examination held at the end. If, owing to exigencies of the service, such attendance is not possible before appointment, it must be made during the first or an early furlough. A considerable proportion of the students, therefore, belong to the Colonial Medical Service; but the missionary societies, trading and plantation companies, as well as private practitioners from, or about to proceed to, the tropics, are well represented.

There are three sessions annually, of three months each, beginning respectively in January, April, and October. At the end of each session an examination is held and a certificate issued. The standard of teaching is that of the degree of the University of London (to which the school is affiliated), the diplomas of the Colleges of Physicians and Surgeons, and the D.T.M. of the University of Cambridge. Besides the regular teaching staff, there are eleven lecturers on the various branches of tropical disease, and on tropical and port sanitation and hygiene. Clinical instruction is given in the wards of the adjoining hospital (Branch Hospital, Seamen's Hospital Society), the fifty beds generally affording excellent material for the study of malaria, dysentery, beri-beri, trypanosomiasis, liver abscess, ankylostomiasis, filariasis, and several less common tropical diseases.

The director and his assistants give instruction in the general laboratory, which is fully equipped with microscopes, incubators, and all appliances

necessary for teaching and for original investigations. Special attention is given to blood work, to the microscopical diagnosis of malaria and other diseases caused by blood parasites, and to the diagnosis of the dysenteries and the various urinary, intestinal, and skin parasites.

Its original location in the neighbourhood of the Albert Works being found, owing to distance from central London, to be inconvenient, the School and attached hospital of fifty beds (devoted principally to tropical cases) was transferred in January, 1920, to larger and very commodious premises in Endsleigh Gardens, Euston Road, N.W.1.

The Museum contains remarkable exhibits in connection with tropical medicine, and has lately been remodelled and re-equipped.

The laboratories devoted to Protozoology, Helminthology, and Entomology are also fully equipped, and each has its own museum and teaching material. In these departments, ordinary and advanced classes are held.

The following scholarships and prizes are in the gift of the School: the Wandsworth Scholarship of £275 per annum; the John Edward Stanley Memorial Prize of £50 per annum; the Duncan Medal, and the Lalcaca Medal.

The following expeditions have been sent out, partly or wholly financed by the School: Dr. G. C. Low and Dr. L. W. Sambon in the Roman Campaign, to study malaria; Dr. G. C. Low in the West Indies, to study filariasis; Dr. R. T. Leiper in West Africa, to study Guinea worm; Dr. R. T. Leiper in East Africa, Uganda, and the Soudan, to study general helminthic conditions; Dr. Philip Manson Bahr in Fiji, to study filariasis; Dr. Philip Manson Bahr in Ceylon, to study sprue; Dr. C. M. Wenyon in Bagdad, Aleppo, and Malta, to study Oriental sore; Dr. C. M. Wenyon on the Nile to study protozoal diseases; Dr. H. Bayon in East Africa, to study sleeping sickness and leprosy; Dr. R. T. Leiper to Calabar, to study *Filaria loa*; Dr. F. W. O'Connor to study the pathology of the South Pacific Islands; and Drs. Daniels, H. Fraser, and A. T. Stanton have studied diseases peculiar to the Federated Malay States in Kuala Lumpur.

The general business, including the selection of the staff, is directed by a School Committee composed of representatives of the governing body of the Seamen's Hospital Society and of an equal number of members of the teaching staff. There is also a Teachers' Committee for the arrangement of the syllabuses and similar matters relating to the teaching. Both committees are responsible to the governing body of the Seamen's Hospital Society.

Further information can be obtained from the Dean of the School, at the India Office, or from the Secretary at the School. P. MANSON.

**TROPISMS.**—(See ANIMAL PSYCHOLOGY.)

**TROTZENDORF, VALENTIN** (1490–1556).—A famous German teacher whose name was Valentin Friedland and took the additional name Trotzendorf from that of his birthplace in Upper Lusatia. He was educated at Leipzig and Wittenberg, and at the latter place acquired the friendship of Luther and Melanchthon. In 1531 he became rector of the Academy of Goldberg, an institution which under his care became highly popular and successful. Trotzendorf was one of the



leading Protestant German teachers during the early Reformation period, and his school was organized on humanistic lines. He taught Latin, Greek and theology, and Latin was the medium of instruction and conversation. His school was destroyed by fire in 1554, and two years after he died suddenly at Liegnitz.

**TRUANCY.**—An offence of a child of school age who habitually neglects to attend school. This offence is recognized by English law as an infringement of the Elementary Education Act of 1876 which introduced compulsory attendance. It is first the duty of the parent to compel obedience to the Act on the part of his children, and to an attendance order made by a magistrate in respect of any child. If the parent is able to satisfy the court that he has used all reasonable efforts to enforce compliance with an attendance order, and that the child is beyond his control, the court may "order the child to be sent to a certified day industrial school, or if it appears to the court that there is no such school suitable for the child, then to a certified industrial school." A day industrial school must be near the home of the child, and since truancy is now a comparatively rare offence in most districts, few such schools exist. Children attending day industrial schools still remain partially under the control of their parents, and the more usual plan is for truants to be sent to a certified industrial school where the control is entirely in the hands of the school authorities. The Industrial School Act of 1866 required parents, if able, to contribute to the maintenance of their children in industrial schools.

**TRURO TRAINING COLLEGE.**—A Diocesan College for schoolmistresses founded in 1858 and enlarged in 1901. Accommodation is provided for sixty-eight students, who are prepared for the Board of Education Certificate Examination. A moderate fee is charged for the two-year course, and students provide their own books.

**TRUTH.**—Truth is the object of the philosophical science of Logic, as beauty is the object of Aesthetics, and goodness of Ethics. The true, the beautiful, and the good demarcate the different spheres of mental activity, the science of which is philosophy.

Truth on its affective side is intellectual satisfaction; on its cognitive side it is the conceptual apprehension of reality. The term "truth" is only rightly employed where a concept is involved, and where in consequence there is a distinction between knowledge and reality. Truth is then identical with knowledge, and the expression "true knowledge" is redundant; the expression "false knowledge," a contradiction.

Knowledge which is intuitional, not intellectual (*i.e.* immediate apprehension without concepts) is neither true nor false. The presentation of an image as a particular apparition in experience, either sense perception or imagination, is not truth, because there is no knowledge to oppose to reality. Truth pre-supposes the distinction of knowledge and reality, and expresses their relation.

Besides this purely philosophical meaning of truth, there is also an acquired meaning. In this it is applied solely to propositions or assertions, one class of which it denotes, falsity denoting the other. The terms "truth" and "falsity" are used psychologically to distinguish the propositions we believe

from those we do not believe; and also strictly logically, in which case the proposition we believe may be either true or false. False beliefs and false propositions are also called errors. The logical use of the term truth appears to give positive and not merely negative value, concrete and not merely abstract reality, to its opposite error.

**The Criteria of Truth.** The problem of truth is to discover the criterion by which we judge that there is agreement between knowledge and reality. The principal theories of a criterion are known as the correspondence theory, the coherence theory, and the pragmatist theory. Each, though primarily a logical theory, is in effect based on a metaphysical concept of the nature of reality.

The theory that *truth is correspondence* supposes that between the ideas in the mind and the objects for which they stand there may be a kind of similarity or resemblance, so that the idea is a copy of a really existing object, or else an impression made on the mind by the object, and preserving, more or less faithfully, its features; or the idea may be a sign and the object a thing signified, the correspondence then being not that of a copy, but that of a point-to-point co-ordination. The criticism of the theory rests on the denial that ideas are, or can be, a kind of separate entities, standing to things in the relation of copies or signs, and inter-mediating between the mind and its objects. There is another form of the theory which does not seem open to this criticism. It is based on the doctrine that relations are external. Truth is said to have no concern with ideas but only with relations, and correspondence means that a relation between ideas asserted to exist, or thought to exist, exists in fact.

The theory that the criterion of *truth is coherence* rests on the logical principles of non-contradiction and excluded middle. The criterion of truth is the ideal of perfect logical self-consistency and harmony. There are degrees of truth which are not degrees of falsity.

The *pragmatist theory* (see PRAGMATISM) is based on a rejection of both the foregoing theories. It asserts that truth is always relevant to some actual human purpose or need. It identifies truth with utility (*i.e.* with goodness in the economic as distinct from the ethical sense). The criterion of truth is that it works. Pragmatism admits no absolute standard of comparison, whether such as correspondence supposes in the world of real existence, or such as coherence supposes in the world of absolute spirit. All is in process. Verification is making true.

**General Conclusions.** A satisfactory solution of the problem of truth is part of the general problem of philosophy, and this is to assign to their right place in a science of the mental life the various activities of the mind. Pragmatism, by making truth subservient to utility, debases logic, making it dependent on economics; intellectualism by exalting truth makes every activity dependent on logic, the beautiful, the useful, and the good, are for it merely the sensible forms in which the concept has clothed itself. But it is not by concepts alone that the mind apprehends reality, it must first form its intuitions and express them in particular images. It is only when we recognize that all forms of reality are not logical, and that the non-logical forms are systematically related to the logical, and that truth has no meaning for any form but the logical, that we can assign to truth a special realm



within reality. It then takes its place as one of the activities of the mind of which beauty, utility, and goodness are others. H. W. C.

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**TUBERCULOSIS IN CHILDREN.**—Probably the majority of children in large towns become infected with tuberculosis, though most of these develop no clinical manifestations of disease, and cannot be said to be "suffering" from tuberculosis. Nevertheless over 10,000 children under the age of 15 are annually certified as having died in England and Wales from the disease. Of those who recover, many are crippled for life; some who do not recover live until they have passed 15, and are not included in the number of children's deaths.

**Predisposition and Infection.** Some authorities hold that most, if not all, adult consumptives receive the infection during childhood, though the disease does not develop until later. We may in any case assert that predisposition is generally laid down in childhood, and may best be combated and counteracted during the period of growth. The chief sources of infection are—(1) the expectoration of consumptives and (2) the milk of tuberculous cows. Infection does not necessarily result in disease, as healthy tissues do not furnish suitable soil for the growth of the tubercle bacilli. When the general health is low ("general predisposition"), or when some illness or injury has lowered the vitality of some part ("local predisposition"), the bacilli may find conditions favourable and disease results.

Infection may be introduced by food through decayed teeth, tonsils or alimentary canal; the glands in the neck and the abdominal organs may thus become affected. When conveyed in the inspired air, the tonsils, bronchial tubes, lungs or glands at the root of the lungs may become the seat of disease. Adenoids and middle-ear disease may result from extension from the upper air passages.

Tuberculosis of the lungs—"consumption"—is the most common form in adults; in children it is the lymphatic glands, bones and joints which are more frequently affected.

Whilst tuberculosis of the lungs is almost invariably due to the human form of the bacillus, it is the bovine type—i.e. that which affects cattle—which causes tuberculosis of bones and joints. This shows the necessity for a proper control of the milk supply, and for the domestic sterilization of milk for children.

In large towns the infective germs seem almost ubiquitous; endeavour should therefore be made to counteract predisposition—i.e. to increase resistance to infection. This does not imply that we should relax effort against the spread of infection, especially in the proper management by consumptives of their expectoration, and in the removal from unsuitable homes of dangerous consumptives—i.e. advanced cases who cannot or will not observe the proper precautions. Continuous exposure to infection constitutes the chief danger; living with a consumptive, rather than the casual association with such persons, is where the risk of infection lies.

**Precautionary Measures** for children of school age naturally fall under the headings of (1) the home; and (2) the school, though it is in the home rather than in the school that infection is most to be feared. In the home, windows should be kept open and rooms clean. The children should not sleep in the same bed with the consumptive, if possible not in the same room. They should not drink out of the same cup or glass as the consumptive, and their faces should not be wiped with a handkerchief which he has used. Consumptives should never kiss children on the mouth.

Consumptive teachers, pupils, caretakers and cleaners should be entirely excluded from school. Free ventilation of classrooms should be insisted on. Sweeping of classrooms should be carried out with the windows open; when the rooms have been used for evening classes, for meetings or entertainments, or as polling stations, the floor should be sprinkled with disinfectant and well swept before the rooms are used for the children.

The main requirements for strengthening resistance are essentially the same whether for assisting recovery in children already affected or for preventing the disease in the susceptible. They are embraced in the so-called "Rules of Life," which form the basis of domestic hygiene and may be briefly summarized as cleanliness, temperance (or moderation in all things), and discipline—all understood in a wide and not in a restricted sense.

*Open Air Schools (q.v.).* It is now generally accepted as a principle of school hygiene that all schools should be, as far as possible, open-air schools. This idea is embodied in play-ground classes open-air day schools and resident institutions in the nature of sanatoria for children in which school education forms part of the system. Children eat better and sleep better when they spend much of their time in the fresh air; to gain the full advantage from the open-air life the increased appetite must be met by adequate food, and there must be full provision for rest and sleep.

Classes out of doors and open-air day schools are beneficial for healthy as well as for delicate children. Those who have already developed signs of tuberculosis should be removed to residential homes in the country or at the sea-side, where their health can be attended to whilst their education is not neglected.

*Tuberculosis Dispensaries* afford treatment for those who are delicate (i.e. predisposed), as well as periodical examination to ensure that early manifestations of the disease may be detected at the onset, when proper treatment may be expected to effect a cure. The systematic examination of all members of the family of any tuberculous patient—the so-called "examination of contacts"—is an important and valuable function of such dispensaries.

*School Medical Examination (q.v.)* is also valuable in detecting delicate children and directing the parents to obtain suitable treatment without delay. Supervision and advice are the special functions of the School Medical Officer.

Thus everything which tends to the increased healthiness and well-being of children, especially amongst the poor, tends at the same time to diminish the prevalence of tuberculosis, and the various associations for "Infant Care" are not without value in this connection. It is, perhaps,

in the greater care for the welfare of children that we may look for the most successful results in the campaign against the "Great White Scourge." (See also NUTRITION AND MALNUTRITION. J. E. S.

**TUFNELL, CARLETON.**—(See KAY-SHUTTLEWORTH, SIR JAMES PHILLIPS.)

**TUNISIA, EDUCATION IN.**—(See FRENCH COLONIES, EDUCATION IN.)

**TURGOT, ANNE ROBERT JACQUES** (1727-1781).—A famous French statesman, was educated at Paris University, and early in life wrote essays that placed him in the front rank among the scholars of the day. In 1761 he became Intendant of Limoges, and devoted himself to the improvement of agriculture and the condition of the poor. In 1774 he became Controller-General of Finance under Louis XVI and endeavoured to reform the government and financial condition of France. He reduced expenditure and increased the revenue, but created enemies among the privileged classes by his attempts to widen the basis of taxation and to break down the immunity from taxes enjoyed by the wealthy. He established free trade in corn throughout France, but attempted too many other reforms during his short period of power. He was dismissed after twenty months of office, and spent his remaining years in literary and scientific studies. His chief work was *Reflections on the Production and Distribution of Wealth* (1766), advocating the promotion of agriculture, and taxation of land only.

**TURKEY, EDUCATION IN.**—In view of the backward condition of the Turkish Empire it is not altogether surprising that Turkish education should compare unfavourably with that of other civilized nations. Before the middle of the nineteenth century the Turks had made hardly any efforts in the direction of public education. Even since that date, the attempts made have been spasmodic and often fruitless. It was the example of Christian peoples resident in the Turkish dominions which inspired these efforts, and to this day practically all higher education is the work of foreigners, or is at least directed by them.

Besides the easy-going nature of the Turk and the incapacity of his administration, two other factors have greatly hindered education in Turkey. First, the necessity of spending time and effort in learning languages which affects all who profess to be educated, more especially those who desire to reach a high standard of proficiency in any branch of learning. Certain popular works have been translated into Turkish, but a native would find it impossible to make much progress without the aid of foreign teachers and foreign books. Moreover, most parts of Turkey are cosmopolitan in character and the exaggerated value of learning languages is illustrated by the popular saying that another language is another purse. Secondly, the difficulty of Turkish script. The Turkish language is a beautiful language with a perfectly constructed grammar and a wonderful system of inflexions. But it is written in Arabic script, which is difficult to write and still harder to read, inasmuch as the vowel sounds have often to be conjectured. The reading of a Turkish newspaper is a task of some difficulty for any save the well

educated, and newspapers in the Turkish language are sometimes written in Greek or Armenian characters, which are much easier to learn and of greater phonetic utility.

**Elementary Schools.** There are two types of elementary schools. (1) Children of both sexes, until they are 10 or 11 years of age, attend schools that are administered in connection with the mosques, and the master of which is the *hodja* (priest). The system of teaching is bad. If you approach a school (housed in a building with no pretensions to ordinary sanitary requirements) you hear a confused hum of voices. The children are repeating aloud the alphabet or passages from the Koran. They cannot understand the Koran, which is written in Arabic: they are learning to read through the medium of a foreign tongue. It is not surprising that progress is slow and results unsatisfactory. (2) The second kind, known as the *Rushdiyeh*, are slightly more advanced schools for boys organized by the Government. The programme in these schools comprises reading, writing, arithmetic, and a little history and geography. Recently a few elementary reading-books, modelled on the English or French Reader, have been issued, and perhaps used by the more enlightened. All advanced Turkish readers are difficult because of the number of Arabic and Persian words they contain.

**Higher Education.** Next come the *Medressch*, which are theological seminaries for young men, attached to most of the larger mosques. They educate the important mollah class, who become priests and often perform legal functions. Their programme includes theology, Turkish, Arabic and Persian.

There is presumably a training-school for teachers in the *Rushdiyeh*, but its activities are inadequate. Spasmodic attempts have been made to remedy the deficiency. About the year 1910 a lady distinguished in English educational circles held conferences with the authorities upon the subject, but the negotiations broke down because the heads of religion objected to the proposed institution being controlled by a Christian.

Other specialist institutions were two efficient military schools under German influences; the naval school, till recently directed by a British naval officer; the medical school at Haidar Pasha; and a school of arts and crafts; one hears but little of the last. After the Crimean War the deficiencies in national secondary education were realized by the more advanced Turks, with the result that the Stamboul University and the Imperial Lycée of Galata Serai were founded. The University, however, was never more than a building and a rather pretentious programme, and the Imperial Lycée remains the only good Turkish secondary school. It was at first directed by a Frenchman and is still largely staffed by foreigners. It gives a sound education in most ordinary school subjects except science. Some subjects are taught through the medium of Turkish, others in French, and there are alternative courses in other modern languages. Many well-known Turks of the present day received their education at Galata Serai.

**Foreign Schools.** For higher education Ottoman subjects depend largely upon foreign schools, private schools, Greek and Armenian schools, private tutors, and residence abroad. In most large centres of population schools of one or other of the above types are to be found. There are

more than thirty foreign schools in Constantinople alone, and there is a large number of Greek schools in European Turkey and on the Asia Minor Littoral; many of the latter, however, are merely elementary schools. The Turkish Government recently instituted an Inspectorate and made efforts to encourage these schools to register and submit to some form of control. But the schools generally hesitated to sacrifice their independence.

Many of the Greek and Armenian schools give a very satisfactory education, but, perhaps inevitably, a disproportionate length of time is spent in studying languages to the detriment of true education in ideas. They are often of charitable origin and are generally administered by the Church authorities, more because the Church affords a convenient existing organization than for any other reason. Quite naturally, they tend to develop the national rather than the Ottoman point of view.

The *Frères* schools, administered and staffed by French and Italian religious orders, are numerous, and many of them are large and important. They give an education on the French model and use the ordinary French text-books. Most of them accommodate large numbers of boarders at a very moderate charge.

About 1860 the Americans began their system of educational and missionary institutions in Turkey. Robert College on the Bosphorus was the first foundation. This College, including the preparatory department, educates some 500 students. It is organized on the American College plan and confers degrees. All students are educated in English, but they are obliged also to pass an examination in their vernacular. Religious education is given on broad lines. This college possesses very fine buildings, including one of the best engineering schools in the south of Europe. Most of the well-known Bulgarians of to-day were educated at Robert College. Its sister institution is the American College for Girls at Constantinople. There are many similar colleges in Asia Minor, the most famous being Marsovan College, which educates especially Armenians, and Beyrout University, which, among other departments, has a strong medical school.

All the great European nations have schools in Constantinople, which do very important work. They are generally open to all, besides educating children of their own nationality. The German school is the largest. Special mention should be made of the English High School for Boys, and the English High School for Girls. The former educates boys of twelve nationalities, including a large proportion of Turks, and aims at developing the English public school system. All ordinary instruction is given in English, the subjects being much the same as in an English school, with a tendency to specialization in commercial subjects in the higher classes. French and Turkish are taught as well. English games and the Boy Scout movement have been introduced and are becoming increasingly popular. Among other important missionary institutions the Scotch Mission for Jews has a large school in Galata. Although, at the outbreak of the Great War, education in Turkey was still backward, there can be no doubt that great improvements were being effected, thanks chiefly to the efforts of native Christians and foreigners. The Turks themselves have largely profited by these improvements. C. R. S.

**TURNER, FRANCIS CHAMBERLAIN** (1853-1893).—Schoolmaster and educationist, was born in 1853; was educated privately, and in 1866 at Marlborough. In 1870, he was at University College School, and then at University College. In 1875 he took his B.A. degree in the University of London, after having spent a year studying at Göttingen. In 1881, Mr. Turner established his own school in Cromwell Road, afterwards removed to Collingham Road.

Mr. Turner, like C. H. Lake, in whose school he had taught, and W. H. Widgey (*q.v.*) was an honorary secretary of the old Education Society (*q.v.*), the account of which he wrote in the first issue of *Transactions* (1887) of the *Teachers' Guild*. It contains a valuable summary of the work and progress of education societies in England, especially that founded by C. H. Lake in 1876. Mr. Turner's own school was conducted in the spirit of an enthusiastic and progressive educationist, and was an excellent example of the value of a school outside of the official system. In mathematics, Mr. Turner was an early exponent of the method of teaching of *Inventional Geometry*. He was one of the fathers of the *Teachers' Guild*; he was one of the best of the educational bibliographers of his time. He was a pioneer of the movement for making teaching a profession by the institution of the registration of teachers. F. W.

**TUTORIAL CLASSES, UNIVERSITY.**—(See UNIVERSITY TUTORIAL CLASSES.)

**TUTORIAL SYSTEM AT THE UNIVERSITIES, THE.**—Colleges (see UNIVERSITIES, RISE OF THE) are of later growth than the universities. At first students lived where and how they could in the university town, attended university lectures, and were subject only to university discipline. The establishment of the first of all our colleges, Merton, Oxford, changed the character of university life. Thus the statutes of Merton provide that the Deans shall keep watch over the morals of the scholars, and the senior students shall preside over the studies of the juniors. Still, for a long period, the whole of the teaching, whether in lectures or in disputations, was given by university teachers. The younger masters of arts, indeed, were required, as *necessario regentes*, to stay on at Oxford and Cambridge and to lecture in the schools. William of Wykeham, the wise founder of New College, Oxford, provided in his statutes that those of the senior Fellows who would undertake the tuition of their juniors should receive special payment. Other colleges in both universities adopted Wykeham's plan, and in course of time university teaching in the Faculty of Arts gave place to college tuition. The practice is to select from the Fellows a certain number as tutors, assigning to each so many pupils to whom the tutor stands *in loco parentis*, advising them not only concerning their studies but also about other matters affecting their life in college or in the university. In the main features, the tutorial system of the two older universities is in use in later ones, though, in detail, there may be differences that correspond to local requirements.

A. REYNOLDS.

**TWO-PART MUSIC, TO ARRANGE FOUR-PART MUSIC AS.**—Consider first unaccompanied music. So far as possible, the two parts should suggest complete harmony.

1. Progressions of 3rds and 6ths are good, but become monotonous.

2. Parts moving in contrary directions are effective if the passage begins and ends with a 3rd 6th, 8ve, or unison).

3. A 2nd is generally good if followed by a 3rd or 6th.

4. A 7th is good when it is a dominant 7th, a prepared discord (properly resolved), or a passing-note.

5. Octaves, unisons, and 5ths are good used sparingly (and not, of course, consecutively).

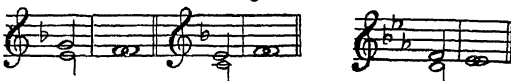
6. The augmented 4th is good when the parts move from it in contrary motion.

7. A perfect 4th is weak, and unmusical at (a) the end, (b) a pause or long-sustained note, (c) the end of any important phrase or cadence, (d) and generally at the beginning. The 4th is good if a passing-note, especially if *unaccented*; it is tolerable if prepared (and resolved on a 3rd.)

A succession of two or more perfect 4ths is particularly unmusical.

Young contraltos should not sing lower than B, or B $\flat$ ;

If the treble ends on the tonic note, the 6th below is the best contralto note. But, for young voices, if the treble ends on any note lower than G, the contralto should end in unison, *e.g.* :—



The same remarks apply to the endings of important phrases. Similarly, the first note in any key lower than G (major or minor), should be in *unison* (assuming the parts to start together).

Older contraltos can sing down to G, and may begin or end with a 6th (or unison) in any key not lower than E $\flat$  major.

**Crossing of Parts** is not advisable, except in music of an imitative or canonic character. The tenor part is often more melodically interesting than the contralto, and one is sometimes tempted to let the contraltos sing the tenor *an octave higher*. This is rarely good.

Consecutive perfect 4ths between treble and contralto are common in four-part music. They can often be remedied in a two-part arrangement by taking such tenor notes (at their real pitch) as form a more agreeable harmony.

If, however, such tenor notes should bring the second part too low, or so *generally low* as to produce a sense of dullness and heaviness, it is better to have occasional whole phrases in unison.

**Accompanied Music.** The only real difference is in the treatment of the fourth. An accompaniment partly replaces the vocal tenor and bass; and the fuller and richer the accompaniment, and the *nearer to the singers*, the more effective will it be. With a piano and the choir at opposite ends of a large room, any weak vocal writing will be as apparent as if no piano were used.

Assuming a good, full accompaniment near the choir, the best composers have sometimes written consecutions of 4ths, etc., which would be unmusical if unaccompanied.

N.B.—Messrs. Boosey, Curwen, Novello, and other publishers, supply two-part arrangements of many four-part compositions, and much can be learned by comparing these arrangements with the originals.

**TYPHOID OR ENTERIC FEVER.**—(See AILMENTS AND INFECTIOUS DISEASES IN SCHOOL LIFE.)

**TYNDALL, JOHN** (1820–1893).—Was born in County Carlow. After working for three years as an engineer in Manchester, he became, in 1847, a lecturer in Physics at Queenwood College, Hampshire. In 1848 he went to Germany, studied under Bunsen at Marburg, and made many original researches in Magnetism and Optics. In 1853 he became professor to the Royal Institution, and in 1867 its superintendent. He studied on the Alps in 1856 the structure and motion of glaciers. His researches on radiation, and the acoustic properties of the air resulted in useful discoveries. For many years he was a brilliant lecturer, and encouraged original research by founding scholarships at Harvard and Columbia Colleges. His best works are *The Glaciers of the Alps* (1860), *Heat as a Mode of Motion* (1863), *On Radiation* (a series of lectures, 1865), *Fragments of Science* (1876). He also wrote text-books on Light, Sound, Electricity and the Forms of Water.

**TYPE (PRINTED) OF BOOKS AND ITS RELATION TO EYESIGHT.**—For children of school-age, a high standard of legibility is important, since 10 per cent. of children are visually defective and 20 per cent. have vision below normal. Care in selecting type and in book-production may prevent the subnormal from becoming visually defective, and preserve normality. Main factors in legibility are: (1) Size of type-faces and proper vertical and horizontal separation; (2) workmanship; (3) suitable ink and paper. The following table is from the British Association Report on the Influence of School-books upon Eyesight (1913 edition)—

Age of Reader.	Minimum Height of Face of Short Letters.	Minimum Length of Alphabet of Small Letters.	Minimum Inter-linear Space.	Maximum No. of Lines per Vertical 100 mm. or 4 in.	Maximum Length of Measure of Line.
Under 7 yrs. .	3.5 mm.	98 mm.	6.5 mm.	10	—
7 to 8 yrs. .	2.5 mm.	72 mm.	4.0 mm.	15	100 mm. or 4 in.
8 to 9 yrs. .	2.0 mm.	55 mm.	2.9 mm.	20	93 mm. or 3½ in.
9 to 12 yrs. .	1.8 mm.	50 mm.	2.4 mm.	22	93 mm. or 3½ in.
Over 12 yrs. .	1.58 mm. or 1½ in.	47 mm.	2.2 mm.	24	93 mm. or 3½ in.

1 inch = 25.4 mm.

Breadth of letters is even more important than height; it is governed by the minimum length of the alphabet. Readers can estimate by examining whether a word of thirteen small letters (*i.e.* not capitals) reaches half the lengths stated in the third column. The number of letters per running inch should not on the average exceed six or seven letters for readers under 7 years, eight or nine letters for 7 to 8 years, eleven or twelve letters for 8 to 9 years, thirteen or fourteen letters for readers over 12.

**Workmanship and Material.** Types should be in true alignment along the base line; linotype printing is often seriously defective in this respect. Inefficient workmanship (*e.g.* an uneven impression) often neutralizes the good effect of well-selected type and paper. Printing from good stereotypes is satisfactory. The paper should be nearly white and the ink black.

The surface of the paper must be hard but not glossy. The print of one side must not show through from the other, and printing must not affect evenness of surface of the other side.

The style of type known as Modernized Old-face or Antique is good, provided the narrow *s* is avoided and that the bar of *e* is horizontal, with sufficient opening between bar and arch. Avoid hair-strokes and great contrast between thick and thin strokes (frequent in "modern face"). Whites and blacks should be well balanced. It should be easy to distinguish between *e*, *c*, and *o*; between *i* and *l*; between *h* and *k*; between 3, 6, 8; and to recognize *m*, *nn*, *nu*, *nv*, *w*, *in*. Letter-terminals ("serifs") should be short, guiding the eye fluently from letter to letter. "Display" type is intentionally arresting and unsuitable for continuous reading.

Normal-sighted children should not bring the book within 12 in. from the eye; they do so, unless checked. Large type may prevent spinal curvature. More legible books cost little more; impaired vision brings diminished efficiency, less appreciation of beauty, the loss of much unconscious education.

G. F. D.

**TYPEWRITING, THE TEACHING OF.**—Although there may be no lack either of instruction books or of instructors, yet it is sometimes a little difficult to arrive at a correct decision on the merits of two or more systems of teaching the same subject, particularly when each is backed by able exponents. In the case of typewriting, we are confronted with the "visual" as against the "non-visual" principle, and the "double" keyboard as against the "single."

**The Touch System.** Now at first sight it might appear as if it must be quicker to manipulate the keys with our eyes fixed upon them; but quite apart from the fact that the sense of thought is generally admitted to be quicker than that of sight, there is the fact that we do not possess two pairs of eyes, and therefore cannot spare one pair for the keys and keep the other for the copy. Consequently, common sense says: Allot the keys to the fingers and the copy to the eyes, as although the fingers can be trained to manipulate the keys, they cannot be trained to read the copy!

Hence the non-visual operators can divide the work of reading and manipulating by a clear line, saying in effect to the one servant, "decipher," and to the other, "manipulate"; whereas visual operators must say to the one, "Decipher and locate," and to the other, "Manipulate, *when your fellow-servant has located the keys for you.*"

Obviously, while No. 1 is assisting No. 2 to locate, the work of No. 1 is in abeyance; and when No. 1 resumes the work of reading, No. 2 stops manipulating. No. 2, therefore, works with alternate rests (e.g. work, rest; work, rest; *ad infinitum*). Looked at thus, we shall readily appreciate the enormous advantage the non-visual operators must have over the visual. This non-visual method is more commonly called the *touch* system.

**Keyboards.** Upon the question of keyboards we venture to think no hard and fast rule can be laid down, as so much depends on the mental faculties of the student; some operators can readily visualize a large keyboard, and to these the double keyboard will doubtless appeal. Again, others find extreme difficulty in picturing a large keyboard, and they naturally welcome the boon of a small keyboard, even with its attendant shift-key. The question of

a single or double keyboard must, therefore, be solved by each individual operator.

Assuming that we are going to teach typewriting by the touch system, and that we intend to allow our pupils to select the machines best suited to their individual capacities, the question at once arises: What is the best and most successful method of studying this principle?

Now the first question we are confronted with is: Shall we teach with typewriters which have blank keys or with keys covered with a shield, or shall we trust the student not to look at the keys? Here, again, the answer depends largely upon individual circumstances. If a person of *strong will-power* sets himself to learn touch typewriting, it matters little whether the keys are visible or not, because he will keep his eyes fixed upon the fingering exercises. In schools, however, there are many students who *will* look at the keyboard, unless they are continually watched. Consequently, it is a great help to the teacher to have machines fitted with shields.

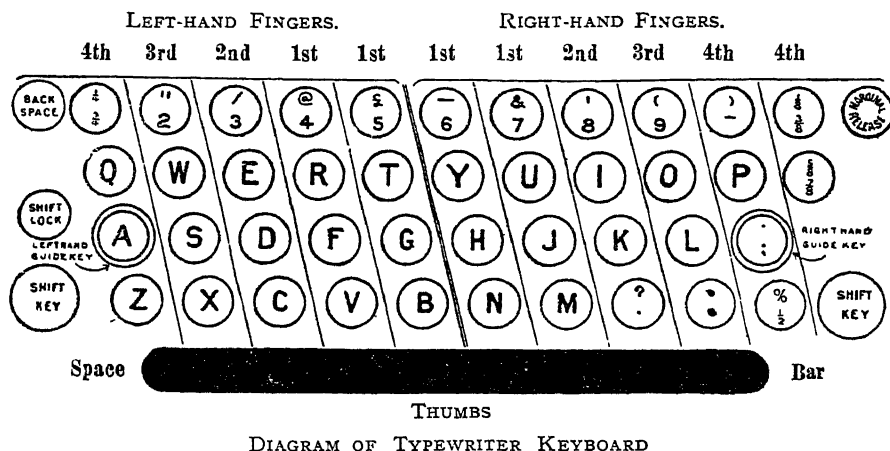
**Method of Teaching.** Assuming, then, that we have no intention of allowing our pupils to locate the keys by looking for them, we must first teach them to form a mental picture of the keyboard, just as they visualize a picture of some exquisite piece of scenery seen, say, during their summer holidays. We must make it *real* to them. We must not, however, ask them to learn the whole of the keyboard at once, but rather in sections, thus: (a) Left-hand section; (b) right-hand section; (c) middle section; and, even when dealing with the keyboard in sections, it is not wise at first to trouble the students with the miscellaneous signs. Get them to think of the section under review, not only when they are actually typing, but also in the house and in the street; to keep on picturing it until it becomes permanent.

Our next step will be to teach them to allocate certain keys to each finger, and this can, perhaps, be best done by calling their attention to the diagrams in the text-book, or by drawing the diagram of the keyboard shown on page 1695.

Point out to the pupils the necessity for keeping the two little fingers over their respective *guide* keys, and using them as feeling points or guides for the others.

This done, the student must be encouraged to work assiduously on graduated exercises, as intermittent work is of little avail. It should be pointed out to them that if they are out for *touch*, they are in for work, and hard work, too, in the initial stages. The majority will have to repress the desire to remove the shield and to look at their fingers until they have trained them to be subservient to their will-power, when they will find that the fingers will glide from key to key without any conscious effort. But although this stage will *most assuredly* follow persistent and well-directed effort, yet it will be reached only by those of stern determination and those who can obtain almost unlimited practice.

And this brings us to the style of fingering exercises to be employed. It is not advisable to give long words to begin with, but words of two or three letters, which the students will be able to type *correctly*, and thus derive encouragement. These words should be first on one outer section and then on the other; and when these have been *thoroughly mastered*, then the first finger should be trained in a similar manner to manipulate the



middle section, the fact being explained to the students that the first finger of the right and left hand must be stretched out slightly in order to manipulate the keys in the two centre rows, while the hands retain their normal position with the two little fingers over their respective guide-keys.

Again, it will be necessary to emphasize that the fingers must be spread out over the keyboard, as many beginners have a tendency to close the fingers. Attention must also be drawn to the fact that the space-bar is operated by a simple downward movement of either the right or left thumb. On no account must the first fingers be allowed to travel down to the space-bar, as they already have a double row of keys allotted to them.

**Impression and Depression.** Pass now to the all-important question of a uniform impression, *i.e.* the amount of force to be applied in depressing the keys. Now a uniform depression does not mean a uniform impression; in fact, quite the reverse. The keys which carry letters composed of a *single stem*, or which bear the punctuation marks, require a much lighter tap than those which bear more complex characters (*e.g.* *M, m, W, w, g*, etc.). In every case, however, the tap should be a staccato one, but the quality of the touch must vary

with the different keys; and it is as well to train the beginner to watch the impression carefully by examining both sides of the paper to ascertain whether too much force is being applied to some keys, or too little to others. We strongly recommend the working of all fingering exercises on *thin* paper, so as to develop a light touch, but then the typewriter must be safeguarded by using a stout backing sheet.

Now, as fingering or groundwork plays such an important part in the study of typewriting, it should be taught by those qualified to lay a good foundation: afterwards the students' course can be shaped in accordance with their known requirements, *viz.*, commercial, literary, legal, or secretarial. If, however, it is uncertain for what work a student is destined, then both speed and an all-round general knowledge may be acquired by working exercises dealing with each phase in turn—first from reliable models and afterwards from MSS.—not forgetting the all-important work of a liberal amount of transcription from the pupil's own shorthand notes.

In conclusion, it is important to impress on the students that every point counts as a factor either for or against success, and that they cannot afford to ignore even the smallest detail. E. COLLYNS.

## U

**UDALL, NICHOLAS** (1505-1556).—Born in Hampshire, took his degree at Oxford, where he was associated with Leland, the King's Antiquary, and wrote the Pageant exhibited by the City of London on the marriage of Henry VIII and Anne Boleyn. In 1533 he was a schoolmaster and published for his pupils *Floures for Latin Spekyng*, selected from Terence, with English translations. In 1534 he became head master of Eton School, and in 1538 brought out an enlarged edition of his *Flowers for Latin Speaking*. During this period he also wrote several Latin comedies, probably to be acted by his boys, who usually performed a stage-play every year at Christmas. At some time between 1534 and 1541 he produced the first known English

comedy, *Ralph Roister Doister*, which professed to be a wholesome jest against vain-glory. The play was written in lively rhyming couplets, provided good matter for merry acting, and was composed "with so good a sense of the reverence due to boys that it may be read by boys of the present day" (Morley). The schoolmaster authorship is shown by the inclusion of a passage affording a good lesson on the importance of right pauses in reading. Udall's most important other work was a translation of some of Erasmus's *Paraphrases* on the New Testament.

**UNION OF EDUCATIONAL INSTITUTIONS THE.**—This union, founded in 1895, has as its

main objects the promotion of elementary, secondary and technical instruction, and the securing of efficiency in teaching. To do this the union is willing to act as an examining board, and grant certificates; to offer prizes, and to recommend duly qualified examiners and teachers. Funds are derived mainly from definite yearly subscriptions from education authorities, from examination fees, and from donations and bequests for the purchase of prizes and the establishment of exhibitions. The area covered by the work of the union comprises most of the Midland counties and the counties of Cornwall, Devon and Somerset.

Membership of the union brings the right of representation upon the council and at all meetings of the union, the use of examinations at reduced fees and the right to accept prizes. Officers of the union consist of a president, vice-presidents and an honorary treasurer. The vice-presidents include the Vice-Principal and the Professor of Education of the University of Birmingham; and the Chairman of the Education Committee or of the Higher Education Sub-Committee of each county council or county borough council joining the union. The council, appointed annually, holds meetings and presents an annual report. The main work of the union consists in carrying out examinations. Considerable service is rendered to education authorities. The syllabuses of the union are issued to, and used by, many committees that do not make use of the examinations; and in several instances the union has been consulted about schemes of work.

**UNITED KINGDOM TRUST, THE CARNEGIE.**—(See CARNEGIE DUNFERMLINE TRUST, THE.)

**UNITED STATES, COLLEGES AND UNIVERSITIES OF THE.**—The colleges and universities of the United States differ in their organization and character from similar institutions in other countries. According to the latest statistical report of the Bureau of Education at Washington, there are now about 500 colleges. Of the endowed universities and colleges, there are now 474 according to the same authority. It is impossible to state how many of these should be termed universities and how many colleges. Of State universities there are 39; of other State-supported higher institutions of learning, 66. In addition there are 542 technical or professional institutions of higher, that is collegiate, grade. Moreover, there are 235 public and 65 private normal schools, many of which are of collegiate grade in whole or in part.

This classification is of the most general character only. There is no governmental authority, either national or local, authorized to classify or standardize these institutions. The greatest freedom of incorporation exists. There is no uniformity whatever among the commonwealths. There is no national official that has any greater authority in educational affairs than that of collecting and disseminating information. The variation existing in these institutions may be indicated by one illustration: in classifying private endowed institutions according to their religious denominational affiliation, the Carnegie Foundation for the Advancement of Teaching discovered fifty-one types of such relationship. Even the statistics given above vary from year to year, and possess only general value. Consequently, the account given in the brief limits of this article must be in

general terms only, and may give an erroneous impression if applied too literally to any one particular institution.

**Historical Sketch.** The American college began as a transplanted English institution of the seventeenth century; the American State university is a product of the early nineteenth century nationalism, and the American university, as the term is now used, of late nineteenth century internationalism. During the seventeenth century England's schools, like her other social institutions, were transplanted to the colonies. The earliest colonial college was termed *Universitas Virginienensis et Oxoniensis*, but it died at birth. The first successful effort was that of the General Court of the Massachusetts Bay Colony in 1636. This institution was termed Harvard College (*q.v.*) two years later, in honour of its first benefactor, John Harvard, a Puritan minister. Harvard's first three presidents and its early benefactors and patrons were from Emmanuel College, Cambridge (*q.v.*), the great Puritan foundation; and the early regulations of Harvard provided that, where no local rules had been formulated, the rules of the parent institution should be the final authority. Throughout the colonial period, the legislature, representing the orthodox church, continued to exercise authority through its control of necessary appropriation. The presence of the governor and other *ex-officio* members on the board of control gave a more liberal interpretation to the policy, yet the dominant control remained in the hands of representative orthodox ministers.

The second college was that of William and Mary, founded in 1693 in Virginia. This institution was controlled by Oxford influence, and remained throughout the colonial period under the influence of the English Church. Even until the Revolution, the head of the college was also the head of the Church in Virginia.

The opening year of the eighteenth century saw the beginning of a third institution, some ten years later to be called Yale College, after its earliest benefactor. Yale (*q.v.*) was founded as a "collegiate school" by the colony of Connecticut, at the petition of a group of Congregational ministers. Their inspiration came, in part at least, from a group of conservative Boston ministers, who were alarmed by the growing liberalism of Harvard and the influence of the Church of England on its governing board. Throughout the eighteenth and most of the nineteenth centuries, Yale continued, religiously as well as educationally, to be the conservative centre.

The "Great Awakening," or the evangelical agitation of the third and fourth decades of the eighteenth century, emphasized forces in opposition to the conservative orthodoxy of the times. Out of these and the demands of the growing Presbyterian denomination, as well as the desire of New Jersey to have a college, grew the foundation in 1746 of the College of New Jersey, commonly known as Princeton. As with all the preceding colleges, the governing board of this institution included *ex-officio* the colonial officials, and in addition the representatives of several religious denominations, including the Quakers. However, the Presbyterian members were greatly in the majority.

Meanwhile, Benjamin Franklin had initiated in Pennsylvania a movement looking toward a far more liberal curriculum than that found in any





*University of California, Berkeley—View of Campus, looking North*



*Photo by Orren Jack Turner\_Co.*

*Princeton University—Nassau Hall. Erected 1756*

PLATE XCII





of the educational institutions of the day. In 1751 this effort materialized in the Academy and Charitable School of Philadelphia, which, in 1756, was chartered by the colonial legislature as the College of Pennsylvania. In 1754, the effort in the colony of New York toward the founding of a college resulted in a charter, granted by the legislature and confirmed by George III, to King's College in the City of New York. This name was changed after the Revolution to Columbia College. With the advent of the College of Pennsylvania and King's College, the days of the seventeenth century curriculum were over. Even Princeton had developed out of a "log college" with a far broader, though primitive, curriculum designed to prepare the frontier minister. Pennsylvania was incorporated at first as an English, a Mathematical and a Latin school. While the Latin school alone survived, its curriculum continued to reveal the broad ideals of the academy. The preliminary announcement of the first president of Columbia stated—

"And lastly, a serious, virtuous, and industrious course of life being first provided for, it is further the design of this college to instruct and perfect the youth in the learned languages and in the arts of reasoning exactly, of writing correctly, and speaking eloquently; and in the arts of numbering and measuring, of surveying and navigation, of geography and history, of husbandry, commerce and government; and in the knowledge of all nature in the heavens above us, and in the air, water and earth around us, and the various kinds of meteors, stones, mines and minerals, plants and animals, and of everything useful for the comfort, the convenience and elegance of life; in the chief manufactures relating to any of these things; and, finally, to lead them from the study of nature to the knowledge of themselves and of the God of Nature, and their duty to Him, themselves, and one another, and every thing that can contribute to their true happiness, both here and hereafter."

Thus in Columbia and Pennsylvania the definite break with the European curriculum and ideals began, and a type of institution attempting to meet the needs of life in a new country came into existence.

During the two remaining colonial decades, two other denominations were supplied with colleges: Brown University in Rhode Island, founded in 1764, representing the Baptists, and Rutgers College in New Jersey in 1766, the Dutch Reformed Church. Dartmouth College took shape in 1770 as a frontier missionary institution, developing out of Moore's Indian Charity School.

Meanwhile, the academy period had begun, and, during the closing decade of the eighteenth century institutions similar to the Nonconformist academies of England (*q.v.*) sprang up in great numbers. Some of these, of pre-Revolutionary origin, later became colleges, as Washington and Lee and Hampden Sidney in Virginia. Before 1880, a full dozen of such institutions were added to the list of colleges.

The first third of the nineteenth century was characterized by two distinct tendencies. One was the multiplication of denominational colleges, now chartered very freely by the State legislatures. Most of these grew out of academies of a more elementary character. Many of them were founded on the manual labour plan of Emmanuel von Fellenberg of Hofwyl, Switzerland. Most of them

possessed the meagre financial resources of frontier communities, and expected their students to pay the greater part of the expense of their education through manual labour. About fifty such colleges were organized during the first third of the century.

The second of these tendencies was toward the foundation of State universities. Several of these were provided for by the constitutions of the early commonwealths or by legislation. But the first to become operative was the University of Virginia in 1826. This institution was the work of Thomas Jefferson, who had laboured for fifty years in its founding. For long he had tried to free William and Mary College from ecclesiastical control, and to organize it as a non-sectarian, State-controlled institution. Failing in this, his efforts were turned toward an independent institution. This was organized under a board of visitors or regents, the members of which received political appointment or approval. Institutional control was in the hands of the faculty. Students were allowed free choice of studies. In its internal organization, the institution remained unique; but in external features it was the forerunner of many.

One notable event marked the close of this period, and began a new epoch in the development of the American college. In 1818 the Dartmouth College decision was reached by the Supreme Court. The main point of the decision was that a college charter is a contract between the college trustees and the State legislature, and that it cannot be controverted without the consent of both. This was in answer to the effort of the legislature of New Hampshire to place additional representatives on the board of control of Dartmouth College, against the wish of the majority of the existing trustees. After this decision, political leaders realized that there must be a distinct type of institution founded, supported and controlled by the State, if the ecclesiastical control of higher education was to be eliminated. Consequently State universities were multiplied. On the other hand, the definite security given to institutions controlled by the Church led to their multiplication.

By the completion of another third of a century, at the close of the Civil War (1865), colleges and universities of the two types mentioned above numbered about 235. During the war, a new type of college had been added as the result of the Morrill Act of 1862. This Act appropriated 30,000 acres of land to the support of agricultural and mechanical colleges, one to be founded in each state. Subsequent acts brought these grants up to 14,000,000 acres valued at \$56,000,000 (£11,200,000). These are the so-called land-grant colleges, which now number 66.

From 1865 to the present time, the number of institutions of collegiate or university grade has more than doubled, so that now there are fully 500. However, the number of such institutions to be included in any list varies, since, as previously remarked, there is no accepted standard of what a college is; and there is no official in the entire country that has the authority to set a standard.

The most important development of the last third of the nineteenth century was the emergence of the university type. The university in this sense is the organization of graduate work, that is, of work for students who have taken the preliminary baccalaureate degree of the college. John Hopkins University, founded in 1874, was

the first institution of this type. During the remaining quarter of the nineteenth century, many of the old endowed colleges reorganized for this type of work. Among the most prominent of these were Harvard, Yale, Princeton, Columbia, Pennsylvania. Other institutions of the State university type, especially Cornell, Michigan, California, Wisconsin, and recently quite a number of others, have developed work of a graduate character, with an organized graduate school.

The one remaining achievement of the late nineteenth century to be noted is the organization of a number of independent institutions, the purpose of which is to standardize and improve the character of college and university work.

The Bureau of Education of the national government at Washington, organized in 1867, has attempted some such function from time to time. The aversion from centralized Government control has been strong enough at all times, however, to restrict this to a minimum. The collection and dissemination of information—and that merely such as the institutions are willing to furnish—is really the only function of the National Bureau of Education.

In 1905 the Carnegie Foundation for the Advancement of Teaching came into existence, with an endowment of \$10,000,000 (£2,000,000), subsequently raised to \$15,000,000 (£3,000,000). The chief use of this fund is to pension retired college and university instructors and administrators. As only such institutions will be considered as conform to certain high requirements, the Foundation has become an important factor in determining the character of college and university. Its numerous investigations have exerted a similar influence.

In 1903 the General Education Board was organized by a gift from Mr. John D. Rockefeller, who, to the present date has given to this Board \$34,000,000 (£6,800,000). This board has distributed more than \$16,000,000 (£3,200,000), most of it among the colleges and universities of the country—again recognizing only those which come up to certain definite standards.

The Association of American Universities, organized by a number of the endowed institutions of higher rank, was founded in 1900 for the purpose of formulating and maintaining standards. The Association of State Universities, founded in 1905, performs this function for State institutions. In 1919 the American Council on Education, with headquarters in Washington, was established to co-ordinate the activities of organization for the promoters of higher education. Similar organizations exist for colleges of different regions, for professional schools, for municipal colleges and universities, for agricultural and technical institutions. Through the efforts of such bodies, definite formative forces are at work to define and to raise the standards of higher institutions of learning in the United States.

**The American College.** This is the most distinctive feature of the American educational system. It is unique, having no counterpart in European systems. With very few exceptions, it is not a component unit of a general university organization as is the English college. Where such a relationship does exist, as explained in the section on the universities, the larger institution has grown up around the smaller, the college being really the parent institution. On the other hand,

the American college is not a secondary school, as is Eton or Winchester.

While the widest divergence exists among these institutions, as to size, wealth, influence, and character of curriculum and work, yet they all conform to a type. With the various standardizing influences at work during recent decades, there has come to be a similarity in essential standards, especially striking when it is recognized that there is no national authority over them and that only one state out of the forty-eight has any such centralized body with authority. There are now over 500 such institutions that come up to the standards commonly set for admission and for graduation. This includes all the State universities and endowed universities discussed in the following sections, for they are primarily colleges in their origin and in the basal part of their work. In addition to these 500, there are about 400 other institutions bearing the name college, and legally entitled to do so. These do not satisfy the standard of work now required by a number of the voluntary standardizing agencies. But they probably accord, in their limited economic facilities and meagre academic offering, with the economic and intellectual condition of the portions of the country where they are found. In other words, they offer educational facilities to regions where a higher grade institution could not survive. Many, if not most, of them are patronized by the local organizations of the various religious denominations. A number of them are local philanthropic or educational enterprises. Some few are commercial ventures, some few may be maintained largely for local advertisement or speculation. Most of them flourish where the public secondary schools are poorly developed, and inadequate to the educational demands. Most of them have a clientèle of local origin; most also are boarding schools, and flourish partly because they offer some substitute for unsatisfactory home or rural living conditions.

The two features essential to the American college are (1) the requirement of a preliminary educational course of twelve years, eight of elementary character and four of secondary; and (2) the completion of four years' academic work under the direction of the college authorities and leading to the baccalaureate degree. The youth thus enters at about 17 or 18 years of age, and receives his baccalaureate at about 21 or 22. Thereafter he may continue his professional training in technical, professional or graduate school, or may enter immediately into teaching or business.

Most of the efforts at improving and standardizing collegiate education in recent years have related to the formulation of entrance requirements. These are usually expressed in terms of "units," of which from fourteen and a half to sixteen are required by standard colleges. A unit means from three to five hours' work per week throughout a year in a subject prescribed by the College Entrance Examination Board and pursued in a secondary school of accepted character. From fourteen to sixteen such units would thus constitute a four-year secondary course. All the standard eastern colleges require that this be tested by special entrance examinations given either by the individual college, by the State Regents as in New York, or by an officer of the College Entrance Examination Board. In the other portions of the country, where the influence of the State universities is dominant,

entrance is by certification, such certificates being received from all secondary schools to which the privilege is granted after examination by representatives of the college organizations (or more usually of the State university), or by the official representatives of the State Board of Education, or of the State superintendent of public education. In recent years, inspection and certification by accredited representatives of the State education department has grown greatly in favour. However, each college is independent, and the competition for students by the smaller institutions is an influence distinctly unfavourable to the maintenance of higher standards.

Of the work within the institutions, each is its own judge. There is nowhere any standardizing authority to determine character, quantity, selection, or scope of work. The power to grant degrees, conferred by the legislature, leaves each institution autonomous. As there is little difficulty in any state in obtaining a charter to grant degrees and, with one exception, no supervision after the charter is granted, great variation—even laxity—exists. This is the problem of the American college and the American degree. However, other standardizing influences are at work than the very definite and powerful ones of academic sanction and public opinion. Each of the leading Protestant denominations maintains an educational or college board. This body requires a certain standard of attainment by a college before it can obtain the recognition or assistance of the denomination. The General Education Board has within recent years distributed large sums among American colleges, and makes high standard of attainment a requirement for participation in its benefactions. The United States Bureau of Education has recently again attempted to standardize and classify colleges on the basis of amount of endowment, size of teaching staff, and quantity and quality of work required for entrance and for graduation. A list of accredited institutions was issued in 1920 by the American Council on Education. Much objection to these attempts at classification and standardization has been aroused, and little can be done officially. The voluntary associations among the colleges themselves, especially the College Entrance Examination Board, have exercised a very powerful and advantageous influence toward higher standards.

The chief internal problem of the college centres around the administration of the curriculum. Previous to the middle of the nineteenth century, this was practically uniform throughout the country, and for all students. It consisted of four years' work, the core of which was the classics and mathematics. The great expansion of the field of knowledge, and particularly the greater attractiveness of and the practical demand for the newly organized natural sciences, and—in the latter part of the nineteenth century—of the social sciences, necessitated an entirely different organization of the curriculum. One solution was that of the so-called elective system, in which the student was allowed a choice, more or less restricted, among a great variety of subjects. Certain experiments had been made along these lines in various colleges, but the great reform movement was headed by President Eliot of Harvard from the beginning of his administration in 1867. The elective system has been employed in practically every American college. Every variety of

arrangement is found, from the perfectly free election of the State universities, through schemes compelling a variety of selection along diverse lines on the theory that the danger of election is too close specialization, to those plans wherein too wide selection is prevented on the theory that the chief danger of the elective system is a scattering of effort. For several decades, the solution favoured by most colleges was a variety of parallel courses leading to the Bachelor of Arts, or of Science, or of Letters, or of Philosophy. This multiplication of degrees became a problem in itself. The present tendency is to allow great latitude in selection and to confer only one degree, or at most the choice of B.A. or B.S., for the greatest variety of programmes of study. It cannot be said that there is any commonly accepted theory underlying this practice; but, with the break-down of all theory, the greatest freedom is allowed to the student, while the authorities bring to bear upon the quality of the work such influences as they can exert. Even where the old theory and much of the old practices are yet preserved, it is generally recognized that—with the modification of the definite curriculum, the conventional method, and the traditional degree—standard attainment has been made quite uncertain, and the college degree, as such, stands for but little more than four years of "exposure" in an atmosphere of culture.

The multiplication of subjects and the expansion of technical requirements for professional preparation have brought another problem of the college curriculum—its undue length. A variety of reforms have been initiated looking toward the curtailment of the college course. Few of them have made much headway so far as external organization is concerned. Most colleges, however, permit a student to complete the four years' course in less time if he desires and is able to do so. The many summer sessions of universities and colleges have made this possible. Many institutions permit the prospective professional student to elect widely of technical subjects during his undergraduate course. Most State universities and many others frankly base all professional schools on two years of collegiate academic work, giving the academic degree on the completion of four years' work.

The external organization of the college is practically the same for the entire country. A body of trustees consisting of laymen has control of the property, the appointment of the faculty, the election of the president, and the direction of the policy of the institution. It is becoming increasingly common for some of the trustees to be selected by the alumni of the institution for a term of years. In a few institutions, and these with the largest body of alumni, the majority or all of the board are thus chosen. For the most part, the trustees represent the social control and direction of general policy. They are personally responsible for the finances of the institution, and usually represent those most interested in the maintenance of the material well-being of the institution. The faculty (*i.e.* professorial and teaching staff) has control of the educational administration, the direction of the educational policy of the institution, and the oversight of the students. Members of the faculty are appointed by the trustees, usually on nomination of the president. Faculty appointments are very stable—usually for life. Few cases of removal for causes other than inefficiency occur. The independence

of the professors is guarded. A few cases of actual or alleged interference with academic freedom have resulted in extended public discussion. The recently formed Association of American University Professors has had this problem as a matter of its peculiar concern. Political, economic, religious, and social influences have at times been exerted over the field of instruction, but, for the most part, it has been, and is, practically free from any overt or covert influences subverting its freedom.

One of the marked characteristics of college life in recent years is the great increase in attendance. The most recent figures show a total of over 216,000 students in colleges, universities, and technical schools. This is one for every 500 population; or, including professional schools, one for every 350. As late as 1870, the proportion was only one in 2,000. This great increase of student population is, of course, a world-wide phenomenon, but it is peculiarly marked in the American college and university.

The great increase in the number of students has introduced new problems. Several of the State universities where student attendance runs to over 5,000 are fostering the development of "Junior Colleges." That is, local high or secondary schools are encouraged to add the freshman and sophomore years of college work, so that a student completing these courses may enter immediately upon the professional work. This plan is being especially developed in California. Where it succeeds, the old-time American college disappears, and the organization of German gymnasium and university, or of the endowed public schools and universities of England practically displaces it.

**The American State University.** Thirty-nine of the forty-eight commonwealths of the Union have State universities; the remaining nine support some other type of higher institution of learning. These nine states lie along the eastern seaboard, and belong to the group of the thirteen original states. There are some sixty-six other institutions of higher educational character supported by the various states. Eighteen states concentrate all their efforts on a single institution; thirteen divide their support between two institutions, a State university and a State agricultural and mechanical college. Ten states support three or more such institutions.

The control of these State universities is exercised through a board of regents or trustees, either appointed by the governor or the state legislature, or elected by public ballot. For the most part these regents serve without salary, or at least with only a very modest *per diem*. Partisan politics seldom enter to any extent into the control of these institutions, though there are cases of such interference in the newer western states.

These institutions have a variety of sources of support, direct appropriations by the State forming their chief income. This may be provided by annual or biennial appropriation of the legislature, or by a permanent general tax on all property within the state. Fourteen of the State universities receive their chief support in this latter form. The second most important source is the land grants of Congress. Twenty-one State universities benefited by the original grant of 1862. Four subsequent acts have granted either land or cash distribution. That of 1907 gives \$50,000 (£10,000) a year to each state for higher educational purposes. Student fees form a considerable income, amounting

in at least six of these institutions, to over \$100,000 (£20,000) per annum. While private gifts have not added large sums in many of the states, some few—as California, Wisconsin, Virginia—have received gifts amounting to millions of dollars.

In organization, all the State universities approximate to a type. The school or faculty of arts forms the centre, with its four years of work based on a four-year secondary course. On the first two years of arts work are usually based the professional schools of law, medicine, technology or engineering, and agriculture. Most of them have now added graduate work based on the four-year baccalaureate course. This graduate work leads to the Master of Arts in one year of residence, to the Doctor of Philosophy in two or three years. A few of these institutions—notably Wisconsin, Michigan and California—have become quite conspicuous for their graduate work. Such graduate work, while technically in philosophy, is really for the most part a higher professional training for the teaching profession.

The State universities are rapidly becoming organs of administration of the commonwealth. Many of them stand at the head of the State educational system, examining and standardizing the secondary schools as well as preparing teachers for them. The State departments of agriculture, horticulture, sanitation, charities, penology and correction, are often closely connected with the State university. University extension work of the broadest and most popular character is carried on by many. The attendance at these courses has grown very large. In 1914-15 it reached 6,859 in California, 4,606 in Columbia, and 3,798 in Wisconsin. No other phase of the higher educational system of the United States is more characteristic of the life of the country, or more promising for the future.

The Association of State Universities in a recent meeting thus formulated a statement of its policy—

"We may define a standard American university to be an institution: (1) which requires for admission the completion of the curriculum of a standard American high school with a four years' course . . . .; (2) which offers in the college of literature and science two years of general or liberal work completing or supplementing the work of the high school; (3) which offers a further course of two years so arranged that the student may begin work of university character leading to the bachelor's degree at the end, and reaching forward to the continuation of this work in the graduate school or the professional school; (4) which offers professional courses, based upon the completion of two years of collegiate work, in law or medicine or engineering; (5) which offers in the graduate school an adequate course leading to the degree of Doctor of Philosophy. . .

"To be a standard university, an institution shall be equipped to give instruction leading to the degree of Doctor of Philosophy in at least five departments, according to the standards prescribed in this report, and shall have at least one university professional or technical school which shall require . . . . two years' collegiate training for admission."

**The Endowed or Private Universities.** These are an outgrowth of the endowed college. In every instance except one—the Catholic University of America at Washington, the organ of the Roman Catholic Church—these universities are connected

with colleges. In every instance (except John Hopkins at Baltimore, Clark at Worcester, Mass., and the University of Chicago) these institutions have grown up out of colleges. In many of the most noted, as Harvard, Yale, and Princeton, the college far outranks the university in its student attendance.

The university as distinguished from the college—consisting of graduate and professional schools, the baccalaureate degree being required for admission to the former and from two to four years of collegiate work for admission to the latter—is the outgrowth of the last forty years. In fact, university organization in itself has been attained only during the last thirty-five years.

Even during the eighteenth century, some graduate students were provided for at Harvard and Yale. But it was not until the sixth and seventh decades of the nineteenth century that these institutions announced work leading to the Doctorate of Philosophy. The opening of Cornell University at Ithaca in 1868, and of John Hopkins University at Baltimore in 1876, gave the first great impetus to university work as distinguished from the older collegiate work. Presidents White at Cornell and Gilman at Hopkins were both greatly influenced by the ideals and methods of the German universities. Cornell was notable chiefly for its group of professional schools, but from the first it also made marked provision for the training of graduate students in investigation. Hopkins was for years the only university without a subordinate college. Clark University was opened at Worcester, Mass., in 1889, under G. Stanley Hall without a college, and it, with Hopkins, clearly set the standard for graduate work. Each of these institutions has since opened an undergraduate college, but in both of them the university still predominates. The men trained in these two institutions spread the ideals and methods of German university work throughout the country. Two of the older colleges, Columbia and Pennsylvania, did much to develop the university idea, and, before the close of the nineteenth century, their professional and graduate work greatly overbalanced the undergraduate collegiate courses. Columbia authorized the use of the term university in 1896, and since then has developed its work on the broadest plan, until it now attracts the largest student body in the United States. In 1892 the University of Chicago was opened, on broader and more original lines than any other American institution. Here it was planned from the first that the graduate school should overbalance the undergraduate, though both were amply provided for in the scheme. A number of novel features of organization were adopted at the suggestion of President Harper. The sessions were made continuous; the year was divided into quarters, instructors having the privilege of leave for any one quarter. The university extension division and the university press were fully organized and supported from the first. Plans were adopted for the affiliation of many older colleges as component parts of the scheme.

While there is no custom limiting the application of the term university to any type of institution or work, and no authority anywhere in the country even to make the word indicate or standardize the type of work to be done, yet the name has come to have a fairly well-defined meaning, and

the institution bearing it to approximate to a definite type of organization.

As with the college, the legal control lies in a board of trustees, which is usually self-perpetuating. The custom of allowing the alumni of the institution to elect representative trustees for a term of years is becoming more and more prevalent. This board of trustees exercises complete control over college, professional schools, and graduate school, and apportions the budget. The chief executive officer is the president, occasionally termed chancellor, who is elected by the trustees and holds office at their pleasure. During this century the president's office and authority have been greatly exalted, and the efficient operation of the institution now depends chiefly upon him. The faculties include the teaching staffs of the various colleges or schools. Members of a faculty are usually appointed by the trustees on the nomination, or with the approval of the president. Occasionally the faculties still retain the right of nomination or even of election. In the larger institutions, bodies representative of the faculties, such as the senate, the council, etc., exist to simplify legislation and administration. Each faculty or school usually has as its executive head a dean, who represents the institution and faculty to the students. Consequently in recent years the office of dean has also been greatly exalted.

The support of these institutions comes for the most part from endowments and fees. The productive funds of several of the larger of these institutions amount to between \$20,000,000 and \$30,000,000 (i.e. from £4,000,000 to £6,000,000) each. The annual income of several is from \$3,000,000 to \$6,000,000 (£600,000 to £1,200,000) each. The proportion received from students' fees varies greatly, but, with all the endowed institutions, it is no inconsiderable sum. With Harvard it is over \$650,000 (£130,000), and with Chicago over \$580,000 (£116,000). With Columbia it is over \$1,100,000 (£220,000). The tuition charges vary from \$100 (£20) to \$250 (£50) per student. The standard rate in the eastern universities is \$150 (£30) to \$250; in the professional schools it is higher. The enrichment of these endowed institutions by private gift is a marked feature of higher education in the United States. For a number of years past the amount given by educational philanthropy totals over \$25,000,000 (£5,000,000) annually.

Any statement concerning the number of such institutions is purely arbitrary. The number admitted to the Association of American Universities is fourteen. The United States Commissioner of Education reports thirty-eight endowed institutions doing graduate work, of which eight are for men, two for women, and twenty-eight for both sexes. The number of students attending these institutions had increased very rapidly within recent years. It is difficult to distinguish between graduate and professional students. Estimated attendance for the thirty-eight mentioned was over 50,000 men and 20,000 women, of whom nearly 10,000 were graduate students and 15,000 professional.

The number of degrees conferred probably offers a better basis of classification. In 1914 the Bureau of Education reports 26,533 degrees to undergraduates, 5,248 to graduates, and 749 honorary. The degree of Doctor of Philosophy offers the best criterion of rank and quality of work. This was granted in 1914 by forty-six different

institutions, to 446 men and to 73 women. It is to be remembered, however, that many of the State universities have now organized graduate work and are conferring the doctorate. More than three quarters of these, however, are still given by the endowed universities. By far the greater number of graduate students are candidates for the degree of Master of Arts or Master of Science. This is usually conferred upon the completion of one year's resident work beyond the baccalaureate. Most of this work is of routine, systematic character. Seldom is investigation a requirement. The demands of the teaching profession for special training and equipment, and the opportunity offered in the secondary schools for positions carrying salaries beyond those in colleges, together with rising standards of efficiency and preparation, have rendered the A.M. practically a professional degree for teachers. At least, the work in universities for this degree has for the most part become of professional character. Consequently there has arisen a great demand for it not only in the endowed institutions, but in our leading State universities. Columbia in the year 1919 granted over 828 degrees of Masters of Arts, earned in course. These degrees, like the doctorate, are distributed throughout the various subjects of study. The doctorates are equally divided between the natural sciences and the humanities. In the order of their popularity, the subjects in which the doctorate was taken were physics, history, psychology, zoology, economics, mathematics, philosophy, botany, education, Latin, German, geology, Romance languages, sociology, Oriental languages, Greek.

The great increase of numbers in attendance, and the marked expansion and improvement of the graduate work offered, especially in fields of research, are the two chief characteristics of university life. Another one worthy of mention is the tendency toward standardization through the efforts of the various agencies previously mentioned. To these may be added the Association of Collegiate Alumnae which, though consisting of graduates only, is performing a somewhat similar service for the institutions attended by women.

The growth in attendance of women is one of the striking phenomena of university life in the United States. While most of the earlier colleges exclude women, or are exclusively for them, or provide for their attendance in special colleges—as Radcliffe College at Harvard and Barnard College at Columbia—practically all the remainder, except Princeton and the Catholic University, make no discrimination against them in attendance at graduate work. The proportion of women in the graduate body varies from 11 per cent. at Yale to 34 per cent. at Leland Stanford, Jr. In some institutions the professional schools, especially of law and of medicine, still maintain an exclusive policy, but this is largely because of necessary limitation of accommodation. Such restrictions are rapidly passing away.

While in their present status these endowed universities are independent of both Church and State control, most of them were connected with Church or State or both in the early years of their existence. This is particularly true of those founded during the colonial period. Harvard's connection with Church and State was not thrown off until the opening of the nineteenth century. Both Pennsylvania and Cornell have official State representatives on their board, and draw a portion

of their support from the State. But the connection in these cases is unusual, and is recognized as offering a substitute for a State university. In their origin Harvard and Yale were completely dominated, as well as chiefly supported, by the Congregational Church; as was Princeton by the Presbyterian, Columbia by the Episcopal, Brown by the Baptist. All have long since severed all official or legal relations with ecclesiastical organizations. The colleges of the Roman Catholic or of the Episcopal Church are legally controlled by these denominations, or by teaching orders of their members. The ecclesiastical connection and control is recognized in many institutions under the influence of the Methodist, Presbyterian or Congregational bodies. A few cases exist where the president is required to be of a given denomination, as at Chicago. But for the most part these restrictions are rapidly disappearing.

**Present Tendencies.** To summarize the description just given, the most conspicuous features characterizing the colleges and universities of the United States to-day may be stated as follows: (1) the effort to standardize the work in both quantity and quality; (2) the free choice of studies allowed to the student, which seems to foreshadow the elimination of all specific requirements; (3) a similar liberality regarding entrance requirements, which in State universities tends to set standards in terms of quantity rather than of specific subjects; (4) a great increase of the numbers in attendance; (5) the elaboration of schools of medicine, law, engineering, and other professions on the basis of two years of collegiate work; (6) the establishment of junior colleges in connection with local high schools, in certain commonwealths where the State university dominates the educational system and the student attendance is very large— which movement would logically terminate in the elimination of the college; (7) the strengthening of state institutions, and the relative, if not absolute, weakening of the older type, ecclesiastically controlled; (8) the increasing importance of graduate work, especially in the older endowed institutions; (9) the multiplication of agricultural and of engineering or technical institutions of collegiate grade, which, however, now devote more time to professional and less to cultural work than in the past generation; (10) the development of great endowments for purposes of research or of supplementing the work of college and university, instead of making direct gifts to the institutions themselves; (11) generous endowments by individual philanthropists.

It will be seen that a number of these features apply particularly to the most characteristic institution of higher education in the States—the college. It is also evident that many of these forces are tending toward the elimination of the college, at least the small college. The great multiplication of high schools, the expansion of State universities (and especially the increase of their extension work), the development of junior colleges, and the beginning of professional work with the junior year, all have this bearing. This situation presents the crucial problem of the moment in American higher education. P. MONROE.

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**UNITED STATES, EDUCATION IN THE.**—The United States proper, or continental United States, consists of forty-eight states and the district of Columbia, and for convenience of classification these are grouped into five large divisions which can be picked out on a map with the aid of particulars given on page 1704. These divisions have areas, population, and density of population as shown in the columns.

These figures show a great diversity in educational conditions. The southern New England and the Middle Atlantic states are essentially urban and manufacturing states. Each of these subdivisions also has a very large percentage of those of foreign birth or parentage, in a number of states this being in excess of 50 per cent. The same is true of a number of the states of the eastern part of the north central division. In the western part of the north central division the population is largely rural, but the percentage of foreign born is still high. There are many foreign born in the eight mountain states, and in the three states on the Pacific Coast. In the sixteen Southern states, on the contrary, there are relatively few foreign born, but a large percentage of negroes, constituting approximately one-third of the total population in these states, and exceeding the number of whites in two states. In the north and west, the foreigners, excepting the Chinese and the Japanese in a few of the Western states, are admitted to the schools for the native white children, but everywhere in the Southern states separate schools for the two races are required. Each of the sixteen states in the two southern divisions, and Missouri in the north central division, were originally slave-holding states, and the abolition of slavery without compensation, the destruction of property incident to the Civil War, and the necessity of maintaining a school system thereafter for each race, left most of these states so impoverished that it is only within the past decade that the school systems in these states have even begun to make any substantial modern progress.

In the North Atlantic division, the educational problems are preponderately city school problems, modified by the need of assimilating the foreigner, and ministering to the commercial and manufacturing needs; in the southern divisions, the problems are largely racial and economic, with agricultural education for the whites and industrial and vocational for the negro as important ends; in the western division, the problems are largely rural and agricultural, modified by the needs of a

few large cities, there being many small country schools, necessitated by the sparse and scattered rural population in this division, as well as in the western portion of the north central division; while in the north central division, the problems partake of the nature of those of the groups to the east and west of them, being more like those of the mountain states in the western part, with commercial and industrial needs more prominent to the east and agriculture much more prominent than those west of the Mississippi River.

In addition to continental United States, there are the following non-contiguous territories and insular possessions, in each of which a more or less extensive educational system is provided.

Alaska	Philippine Islands
Guam	Porto Rico
Hawaii	Samoa
Panama Canal Zone	

**Educational History.** Education in America has grown from the small unit outward, and state school systems are a relatively recent evolution. The town in New England, the town or church or district in the middle colonies, and the parish or county in the southern colonies were the original units. In the beginning, the types of education established in each colony were more or less direct copies of some form of administration known in England, being most like England in Virginia, and most advanced beyond English practice in Massachusetts. The period up to the middle of the eighteenth century may be termed the period of transition, by the close of which the practice in England had become established here, and in many colonies had gone much beyond the practice of the mother country. The principles of the compulsory establishment and support of schools, with the right not only of communities to levy rates, but of the colony (state) to make general appropriations for schools, had been established. After this time a change set in which gradually modified the earlier establishments, developed new foundations, and led to a more democratic but at the same time less effective series of schools. The coming of German Lutherans and Scotch-Irish Presbyterians, the Methodist revival, the decline of the old Puritan theology in force and effectiveness, the rising democratic spirit and national consciousness, all tended to a breakdown of the earlier educational traditions. The compulsory maintenance of schools, as originally required in New England, also began to break down, the interests of districts or parishes in the towns became superior to the interests of the towns as a whole, and the spirit of individualism and independence became rampant. The result was a general breakdown of the old educational system in the colonies where general religious and secular education had been established, the rise of the dame school and the district system, the beginnings of the process of substituting the academy for the old Latin school, and the rise of a few American colleges with a distinctive American aim. These conditions continued for some time after the establishment of independence.

At the time of the formation of the Federal Constitution, education was not a matter of enough importance even to be mentioned in the document. So far as there was any mention of education in the debates of the Constitutional Convention it related to a national university and not to public education, and even on this matter no action was



Division.	Area in sq. miles.	Percentage of total area.	Total population 1910.	Percentage of total population.	Average number per sq. mile.	Percentage of population in cities of 2,500 or over.
CONTINENTAL UNITED STATES—	2,973,890	100.0	91,972,266	100.0	30.9	46.3
1. North Atlantic Division:	161,976	5.6	25,868,573	28.1	134.0	79.9
(a) 6 New England States . . .	61,976	2.2	6,552,681	7.1	105.7	83.3
(b) 3 Middle Atlantic States . . .	100,000	3.4	19,315,892	21.0	193.2	71.0
2. North Central Division:	764,386	25.3	29,888,542	32.5	39.4	45.0
(a) 5 States East Miss. Riv. . .	245,546	8.2	18,250,621	19.8	74.3	52.7
(b) 7 States West Miss. Riv. . .	518,840	17.1	11,637,921	12.7	22.8	33.3
3. South Atlantic Division:						
8 States and Dist. Col. . . .	269,071	9.3	12,184,435	13.3	45.3	25.4
4. South Central Division:	609,255	20.5	17,184,435	18.7	28.2	20.5
(a) 4 States East Miss. Riv. . .	179,509	6.0	8,409,901	9.1	46.8	18.7
(b) 4 States West Miss. Riv. . .	449,746	14.5	8,784,534	9.6	20.4	23.3
5. Western Division:	1,177,220	39.3	6,825,821	7.5	6.6	48.8
(a) 8 Mountain States . . . .	859,125	28.6	2,633,517	2.9	3.1	36.0
(b) 3 Pacific States . . . . .	318,095	10.7	4,192,304	4.6	13.2	56.8

taken. The tenth amendment to the Constitution, forced as a part of the conditions of ratification of the document by the states, declared that "all powers not delegated to the United States by the Constitution, nor prohibited by it to the states, are reserved to the states respectively, or to the people." This included education, and the United States, as a nation, has never undertaken to establish a system of public education, except in the colonial possessions, and even in these cases the system, when established, has been turned over to the colonial governments to manage. The United States has liberally aided the states by land grants for schools and colleges, by grants of money for agricultural and vocational education, and has rendered valuable service in the collection and dissemination of information by the establishment and maintenance of the office of United States Commissioner of Education, but further than this the nation has not gone in aiding the states. At the time of writing, however, the Smith-Towner bill is before the National Congress proposing substantial money grants to the states for general education, and it seems almost certain that sooner or later some form of national aid will be granted them for general education and the training of teachers.

Education was thus left to the states to handle as they saw fit, but the conditions of apathy, indifference, and decentralization which arose in the latter part of the eighteenth century continued well on into the nineteenth. A number of far-seeing men realized the need for, and urged the creation of, state school systems, and a few states made certain more or less abortive attempts at their creation, but it was not until after about 1830 that much was accomplished. The idea of universal education was but slowly accepted, and for a long time seemed more like a dream of the enthusiast than a possible reality. Still more, the need for general education was but little felt. The ability to read and write and cipher distinguished the educated man from the uneducated, and even this little was not necessary for the transaction of much of the ordinary business of life. The religious need for education had largely passed, and the new national and economic need had not yet begun to be felt. People, too, were bitterly averse to general taxation for schools,

education being felt to be largely a personal accomplishment, which those who desired it should pay for. So far as education was provided free it was regarded more as a charity than as a right, and in a number of states, from Pennsylvania south, the charity conception of education predominated, and the schools for a long time existed as Charity Schools. In most of the southern states this conception continued up to the time of the Civil War.

The Lancasterian movement (*q.v.*), which came to this country about 1806, did much to make education for all seem financially possible, and the first schools organized in a number of cities were Lancasterian schools. Foundations began to be left and funds created for the education of poor children. The different humanitarian movements which arose after about 1820 made free schools one of their demands. The land grants made for education to the new states by the Federal Congress gradually began to stimulate an interest in state systems of education. In 1813 New York State established the first state school officer, and was followed by Maryland in 1825, Vermont in 1827, Pennsylvania in 1833, and Michigan in 1836. In 1837 Massachusetts created its State Board of Education, Horace Mann was elected its first secretary, and the great Massachusetts educational revival began. Two years later, Connecticut did the same, and Henry Barnard began his great work. These two men rendered a national service in awakening the people to the need of general education, and in laying the foundations of American State education. Shortly afterwards the great immigration movement began, first with the Irish in 1846, and then with the Germans after 1848. The ignorance and poverty of the one and the educated clannishness of the other helped to point out the need of general education to preserve and advance the welfare of the state. By 1830 a general awakening was in progress, and by 1850 it was accomplished in the northern states, and State school systems had been created. The State school systems of the southern states date, in nearly all of the states, from the conclusion of the Civil War.

At first the battle was fought out to establish the principle and provide the rudiments of an

elementary education only. The old reading and spelling and ciphering school early merged with the writing school to form the elementary or primary school, and it was this which was first made free. Gradually the high school was added, beginning with the Boston English High School in 1821, and was gradually extended to the west and south. By 1850 some twenty public high schools had been established by as many American cities. Everywhere east of the Mississippi River this upward extension of the educational system was contested in the legislatures and in the courts. The first normal school under State auspices was opened at Lexington, Massachusetts, in 1839, with three students, and by 1850 there were six public and three private schools in the United States engaged in the professional training of teachers. Finally, everywhere to the west and south of New York and Pennsylvania, the states have gradually created one or more State universities to provide higher education for the children of the State, and to supplement the provisions made for higher education by the many church colleges early established. Just when all of this took place varied in the different American states, but by 1850 it had been established in principle, at least, that the property of the State should educate the children of the State, and that the establishment of a State school system, extending from the primary school to the university was a right of the State. The full working out of this principle was the work of the next twenty-five years for elementary education, and forty years for secondary education.

The abolition controversy and the Civil War for a time largely absorbed the energies of the nation, and it was not until after about 1875 that attention was again forcibly directed to public education. The United States Bureau of Education was established in 1867, and served to awaken new interest in education; the great industrial expansion following the close of the war created new economic needs; the Franco-Prussian War of 1870 drew new attention to the value and importance of national training; the London Exhibition of 1867 and the introduction of drawing into the schools of Massachusetts in 1868, and the Russian manual training exhibit at the Centennial Exhibition in 1876 opened up industrial possibilities; the introduction of the kindergarten about 1870, and the Herbartian pedagogy a decade later, brought new conceptions and new methods into public education. The period from 1870 to about 1900 was one of expansion and reorganization. There was much discussion as to aims and methods, much weighing of the value and importance of both old and new subject matter, and many experiments were tried. Methodology became the ruling conception of the normal school, and "pedagogy" began to find a place in those universities more closely in touch with the public schools of the State. A new interest in children was awakened, and child-study for a time almost monopolized educational work. Education became introspective, and applied psychology developed as a master science.

State school systems were developed in details, though no large amount of new constructive legislation appeared after the organizations and reorganizations which took place just before or during the seventies. In most states we find that the legislation between about 1880 and 1895 or

1900 is almost entirely an amplification of what had already been established, and in many states but little new legislation was enacted. A number of additional normal schools were created, cities were given enlarged powers to go ahead without waiting for the State as a whole to follow, the schools were perfected in organization and management, a number of additions were made to the elementary curriculum, and the idea of compulsory attendance was stated in a series of ineffective laws. The most marked feature of the development in the late eighties and the nineties was the coming of the high school and the State university into popular favour, and the establishment of numbers of new high schools in all of the northern states.

Beginning about 1900, earlier in some states and later in others, we witness a new awakening of popular interest in public education. This time, instead of an inward view it is an outward one, and the question of the relation of the school to society becomes uppermost. The great flood of ignorant immigrants, the congestion of population in the large cities, the new economic and industrial needs, the need for a more intelligent and intensive agriculture, the increasing world participation of the nation, new questionings as to relative values of knowledge—these and many other influences operated to change the direction and purpose of American education. Practical training began to supplant much of the methodology in the normal schools; a broader and more comprehensive "education" took the place of the narrower and more limited "pedagogy" in the universities; education for practical training and usefulness in life began to supplant education merely for discipline; and an attention before unknown was directed to the physical child and his physical and mental needs.

Since 1900 school legislation has increased enormously all over the United States, and much new and important legislation has been enacted. A reorganization along better administrative lines has taken place in many states, new requirements have been laid upon communities, increased taxation for education has been ordered, additional requirements for teachers have been insisted upon, and the public schools, particularly in the cities, have experienced a great expansion in scope and usefulness. Nowhere has educational progress been more marked than in the old slavery states, where virtually new school systems have been created since 1900. The least progress has been made in rural education, but even here many new movements have been begun that may in time completely transform the education in our rural schools. The movement for vocational training, other than agricultural, has also experienced a marked development in the cities, and vocational training has, almost all at once, come to be recognized as a necessary complement of free public education. The demand for a self-supporting and a self-respecting form of education, as well as mere thinking, has become insistent, and the topics of discussion of to-day have changed from spelling, arithmetic, grammar, methodology, and even the course of study to such new topics as child welfare, health, agricultural and vocational training, the needs of the country and of the city child, the education of defectives and of special classes, economy of time, and school efficiency. The Great War has brought new problems to the front, chief among which are Americanization,

illiteracy, adult education, and health work in the schools, and a new attention to, and extension of, the idea of compulsory attendance. Subjects which monopolized attention twenty years ago are scarcely mentioned to-day, and the new educational legislation also shows this recent change in attitude. From an institution to impart a certain amount of necessary instruction, the school has been elevated into an institution of democracy for the serving of democratic needs and ends. As new and more complex national problems come to the front, and as the initiative, referendum, recall, and woman's suffrage are increasingly adopted, we shall doubtless witness a still greater dependence upon the public school as an instrument of democracy. The detailed history of education in almost any American state illustrates such changes in conception as to the needs for, and the purpose of, public education in a democratic State.

**National Aid for Education.** It was mentioned earlier that the National Government had liberally aided the states by land grants and other forms of aid for schools and colleges. The aid which has thus been given to the different states for educational purposes has come largely from the great national domain which the Federal Government came into possession of after the formation of the Union. This was in part derived from cessions of western land made by the different states, in part from the purchase of the Louisiana territory from France, in 1803, and in part as a result of cessions made by Mexico after the war of 1846-48. Out of this common property of the Union, all of the new states admitted after 1800, except Texas and states carved from earlier states, have received grants of public land to assist them in maintaining schools and founding universities. In the smaller and the earlier admitted states, the grants have not been of large importance, except perhaps as a stimulus to state activity, but, in most of the larger and more recently admitted western states, the grants have resulted in large permanent funds that to-day help to maintain education in these states.

The land-grant policy of the Federal Government, under which grants of public land were made to the states for educational purposes, began with the admission of Ohio, in 1802. Beginning with Ohio, and continuing uninterruptedly up to 1850, Texas (1848) alone excepted, the Federal Congress granted to each new state admitted the sixteenth section of each township (1 sq. mile in each 36), or equivalent lands elsewhere in case this section of land had been sold, as a permanent endowment for common schools. Two whole townships (72 sq. miles), and sometimes more, were also given for the endowment of a college or university within the state. Texas did not receive such a grant because this state was admitted to the union from outside, after it had secured its independence from Mexico, and was not carved out of the public domain as were the other states. Texas, however, endowed its schools and university from its own State lands even more liberally than had the Federal Congress the schools of the states it created from the national domain.

Beginning with the admission of California, in 1850, and in the case of all new states thereafter carved from the public domain, two sections or square miles of land in each township of 36 sq. miles were given to the states for the endowment of common schools, while the earlier endowment

grants for the college or university of the State were continued, and, in the case of all states admitted beginning with and after 1889, very materially increased. In three of the arid western states (Utah, Arizona, and New Mexico), the grant for common schools was further increased to four sections, or one-ninth of the entire state. A number of other grants of land, made by the Federal Government to the states for other or for unspecified purposes, have been diverted by the states to the endowment of education, and in all a total of approximately 131,964,300 acres of public land have been used to endow common schools in the different states, and a total of approximately 16,775,400 acres has been used to endow colleges and universities. This is an area almost twice as large as the British Isles.

At the traditional government price of \$1.25 (5s.) an acre, this should have produced a permanent endowment fund of approximately \$175,000,000 (£35,000,000) for common schools, and approximately \$21,000,000 (£4,200,000) for colleges and universities. As a matter of fact the grants have amounted to much more than these sums, the sales in the newer western states having been for much larger prices. Most of the earlier grants were disposed of in the days when land was a drug on the market, and funds then accumulated were later in part or entirely lost. In the southern states many State school funds were swept away by the Civil War, the original fund existing to-day only as a "perpetual obligation" on which the states, very creditably, pay a regular interest to the schools from the proceeds of general taxation. In the twelve states admitted since the Civil War the lands have brought much larger figures, and much of the most valuable land given away by the Federal Government remains as yet unsold in these newer states. Something like \$150,000,000 (£30,000,000) of endowment funds have been obtained from the lands sold up to the present time, with probably three times that amount in prospect for the future. The university lands, similarly, have brought approximately \$50,000,000 (£10,000,000) to date, with probably \$150,000,000 (£30,000,000) more in prospect for the future. Other land grants made for normal schools, schools for the deaf, dumb and blind, and for reform schools, probably will net endowment funds of \$30,000,000 (6,000,000) more.

A peculiarity of these grants of land for common schools and universities was that they were made only to the new states admitted after 1800, and that the original thirteen states and the states carved from the original thirteen (Vermont, Maine, and West Virginia) did not share in the grants; neither did Kentucky or Tennessee, admitted before the Federal land-grant policy was begun; and these states have for long nourished a grievance because the new states, carved from the Federal domain after 1800, have received such liberal grants of land for educational purposes, while the original states, the states admitted before 1802, and states carved from the original states, did not share.

In 1862 the Federal Government inaugurated a new form of grant, giving 30,000 acres of public land to each state for each senator and representative the State had in Congress at that time, to be used by the states to endow colleges for instruction in agriculture, the mechanic arts, and military tactics. This act has come to be known as the Morrill Act, being named after the author

of the bill, Senator Morrill of Vermont. The grants of land, all placed on the market at about the same time, actually brought but very small prices, and the endowment funds created were, in all except a very few of the larger states, small and of but little importance. The stimulus given to the new type of collegiate and university instruction was, however, large and of great future importance. Probably no aid given to education by the National Government has ever proved so fruitful as have these grants for the establishment of colleges for instruction in agriculture and mechanic arts. New and vigorous colleges have been created, small and feeble State universities have been awakened into new life, agriculture and the engineering professions have been developed, and the states have been stimulated to make large and rapidly increasing appropriations for their colleges and universities.

In 1887 a still more important departure from preceding practices was made by the Federal Government when direct money grants for education, instead of grants of public land, were begun. The first grants were \$15,000 (£3,000) a year to each state, to establish an agricultural experiment station in connection with each college of agriculture. In 1905 the amount granted to each state was increased to \$20,000 (£4,000), and by 1911 it had been increased to \$30,000 (£6,000) a year to each state. So important were the results obtained from these money grants that, in 1890, an additional direct money grant was made by the Federal Government to each state for instruction in its agricultural college. This grant began at \$15,000 (£3,000) a year to each state, and gradually increased until a grant of \$50,000 (£10,000) a year to each state was reached in 1912. The University of Porto Rico, the College of Agriculture in the territory of Hawaii, and the territory of Alaska, were later admitted to these grants, so that now the Federal Government grants annually \$50,000 (£10,000) for experimental work in connection with, and \$50,000 (£10,000) for instruction in, the colleges of agriculture and mechanic arts in forty-eight states and three territories. These grants have been well administered and have given large educational returns.

Recently two other important laws enacted by congress have provided for additional Federal aid to the states for educational purposes, both of which promise to stimulate very large and very important educational activity in the future. The first, commonly known as the Smith-Lever bill, which became a law in 1914, provides for Federal aid to the states for agricultural extension work to be carried on in connection with the state colleges of agriculture and the United States Department of Agriculture, the purpose being to diffuse among the people useful and practical information on subjects relating to agriculture and home economics. Beginning with a grant of \$10,000 (£2,000) a year to each state in 1915, the grant is to increase regularly for eight years until a maximum of \$4,100,000 (£820,000) additional is reached. This additional sum is not to be distributed to the states equally, however, but in proportion to the rural population in each state. Another new principle in Federal aid for education was first introduced in this law in the form of a requirement that each state must duplicate from its own funds all sums received from the Federal Government.

In 1917 another and an even more important law, the so-called Smith-Hughes Vocational Education Bill, was enacted by the Federal Congress. This provides for grants of Federal money to the states: (a) in proportion to their rural population, for the stimulation of instruction in agriculture in secondary schools; (b) in proportion to their urban population, for the stimulation of instruction in trades, industries, and home economics in secondary schools; and (c) in proportion to their total population for the training of teachers in these subjects. The total grants will be as follows—

	First year, 1917-18.	1925-26, and thereafter.
For instruction in agriculture in secondary schools	\$500,000 £100,000	\$3,000,000 £600,000
For instruction in trade, industry and home economics	\$500,000 £100,000	\$3,000,000 £600,000
For training of teachers in these subjects	\$500,000 £100,000	*\$1,000,000 £200,000

\* This item reaches its maximum in 1920-21.

The grants to the states can be used only for the salaries of teachers; every dollar of Federal money must be duplicated by a dollar of State money; and adequate State plans must be made and approved by a Federal Board of Vocational Education. This latest grant of Federal aid for education to the states is the most intelligently conceived and the most adequately safeguarded of any of the many grants made to the states for educational purposes by the Federal Government in the 115 years since the first Federal aid for education was given. It also promises to be the most important grant made to the states for educational purposes, measured in the power to stimulate educational and national progress.

**The State Systems.** Though the spirit of education in America is national, and though one often speaks of "the American public school system," in reality there is no national school system. Education in the United States is a strictly state affair, and the different state school systems, though unified by a national purpose, differ much in form of organization, degree of educational advancement, and scope and purpose. In New England, for example, the form of organization is the town, with the county educational organization absent, and with a strong advisory State oversight. The population is dense and largely foreign, many of the communities are old and wealthy, and industry and commerce are the prevailing interests. Here we find many good city school systems, with a tendency to emphasize the old established culture as well as the newer industrial needs, but with little attention to agriculture or to rural school problems. In the North Atlantic group we find a combined form of township and county school organization as the common form of administrative organization, with a stronger form of State school administration. Rural school problems, and agricultural and domestic instruction occupy a prominent place, and strong State universities help to guide the educational system of the states. In the southern states we find the county form of school administration the more common form, with a weaker State educational organization. The large number of the negro race, the large rural population, and the great dependence on agriculture as an industry

here emphasize agricultural and industrial training, while the relative poverty of the south makes the maintenance of extensive school systems as yet impossible. In the western division we find a small, scattered, but relatively very rich population, and here the district school system, often combined with an imperfectly developed county-unit form of school organization, and with a relatively weak form of State control, is the rule. The school systems are often much more county school systems than State school systems, though there are exceptions to this somewhat general rule, and the tendency within recent years has been marked to require State uniformity in many new matters. The great wealth of the western states, and their large and fruitful land grants for education, have made the maintenance of excellent schools, despite the sparse population, a relatively easy thing to do.

A few typical state organizations may be referred to. Massachusetts is a type of the New England town form of organization, with a State Commissioner of Education having largely advisory functions. Connecticut and Rhode Island have a somewhat similar form of educational organization. New Jersey is an example of a state having a strong county system of school organization and administration, with also a strong form of State school administration superimposed. New York, which is largely in a class by itself, has a strong district system; no county educational organization, as such, but a district form of superintendence, well organized; and then superimposed over all the most highly centralized form of State school administration to be found in any American state. Maryland and Louisiana are excellent illustrations of the county system of school administration, with a partially developed form of State educational administration superimposed. Kentucky and Tennessee are examples of a county form of organization in process of evolution, with relatively weak State control. Ohio is a good example of township system, with almost no county educational organization, and a relatively weak State educational organization. Indiana is a good illustration of a strong township organization combined with a county form of organization, and with a well-developed form of State educational administration superimposed over all. Nebraska is an example of a state in process of transition from a strong district to a strong county form of educational organization, with a State oversight and control which is neither strong nor weak. Nevada is in a class by itself, being an illustration of a state having a weak and scattered district organization and a strong State organization, and with no county educational organization in between. Oregon and California are illustrations of states having rather strong district and county organizations, and with a State oversight and control which is clerical, judicial, and advisory, rather than strong. Similarities are often found between neighbouring states, and also important differences as well. There is no American type of State educational organization, or even agreement as to what is the best form of State and local educational control, and most of our American State school systems may be regarded as still in a period of somewhat rapid educational evolution, though with a tendency to strengthen the powers of the county or the State, at the expense of the smaller units of educational organization.

**School Support.** There is no uniformity in the matter of school support either, different states following different plans. Massachusetts and Kansas are examples of states in which the smallest local unit, the town in Massachusetts and the district in Kansas, carries practically all of the burden of school support, there being no county or State taxation for education. Ohio and Indiana are examples of states in which the burden falls largely on the township, but where the State also aids the townships in carrying the burden. New York is a somewhat similar example, the State here rendering assistance to the districts, which carry the chief burden of school support. Georgia was for long an example of a state which supported its school system almost wholly by State taxation, but recently local taxation has been established there, to supplement that from State sources. California is an example of a state which supports its rural and town schools almost entirely by State and county taxation. In addition to general county or State taxation, or State appropriations, many of the states to the west of the Mississippi River have large permanent endowment funds, derived chiefly from the National Land Grants, which add materially to the financial resources which the state has for maintaining its educational system. All of these funds are apportioned to the counties and to the townships and districts on some single or combined basis of apportionment, of which school census is the most common, as well as one of the most inequitable bases.

In a few states secondary education is maintained separately from elementary education, a state or county tax, or state appropriations being used to supplement county or local support for high schools. California is an example of a state, of which, however, there are very few, that completely separates the funds raised for elementary education from those for secondary education, and levies special high school taxes. In a number of states, as for example Minnesota, North Dakota, and Pennsylvania, state appropriations are made for aid to secondary schools, and these are granted to approved high schools in certain quotas, varying with the size of the school. New Jersey and California are examples of states where definite apportionments are made on the basis of the number of teachers or the school as a unit, and the remainder on an attendance basis. A few states, as for example Arkansas, Georgia, Minnesota, maintain state agricultural high schools; and a few southern states, as for example Alabama, maintain a state industrial high school for vocational and industrial subjects.

The universities, colleges, normal schools, and special training or educational institutions maintained by a state are usually supported by definite state appropriations, or by a definite rate of taxation, the proceeds of which go to the institution or institutions named in the law. The national government also makes definite annual appropriations to each state for the maintenance of agricultural experimental stations, and for instruction in the colleges of agriculture and mechanical arts. Among the special institutions maintained by most American states are reform schools, schools for the education of the blind, deaf and dumb, and schools for the training of the feeble-minded.

**Teachers and Training.** The normal school is everywhere an established institution in American

state education, each state maintaining one or more schools, except Delaware, which provides for its normal students by arrangements with adjacent states. But few states have only one state normal school, while many have five or more. In the southern states, one or more normal schools for each race are maintained. Many of these state normal schools are well equipped and well supported institutions. In addition to about 180 state normal schools maintained by the different states, many cities have provided city normal schools to train prospective teachers for the particular city, and in a few states, notably Michigan and Wisconsin, the county normal school has had a remarkable development. In still other states, Kansas and New York are good illustrations, normal classes have been established in the high schools in an effort to provide teachers with some form of training for the rural schools. In one state, Indiana, the private normal schools and church colleges were temporarily designated as state training schools, and at least twelve weeks of professional training was made a pre-requisite to obtaining a teacher's certificate in the case of all new teachers. Despite all of these efforts, except in a very few states, the number of trained teachers is not large. In many states the percentage does not reach 25 per cent., and there are few states which have 60 per cent. In the cities the percentage is much higher, and in cities maintaining city training schools almost all of the teachers have received some professional training. It is in the rural schools, where the teacher usually begins, that the lack of professional training is most in evidence and is most injurious.

In an effort to provide some training for teachers in service, teachers' institutes, summer normal institutes, and junior normal schools, of four to six weeks duration, and Teachers' Reading Circles have been organized in a number of states, and summer sessions of many of the State normal schools and the State universities have been provided. These have rendered valuable service, during the past decade, in imparting both additional knowledge and a professional attitude to the teachers of the State.

**Secondary Education.** The development of the American high school, during the past twenty years in particular, has been one of the marked features of American public education. Not only full four-year accredited schools, but three-year, two-year, and even one-year high schools have been provided for in the laws, and grants of money have been made in aid of such. The township high school has become a feature of the North Central states; the county high school of the western and southern states; and city, town, district, and union-district high schools are met with all over the United States, and have rapidly passed and displaced the private high school which preceded them. In 1890, but 60 per cent. of the high schools of the United States were public high schools, while in 1918 they constituted 92 per cent., and the number of schools has increased from 2,526 to 13,951 in the same time. In 1918 the total enrolment in public high schools was 1,735,619, or 91.7 per cent of the total high school enrolment in the country. The enrolment in private schools was 158,745 or 8.3 of the total enrolment in high schools of all kinds.

**Higher Education.** The University of North Carolina dates from 1795, and the University of

Michigan from 1817. As the new states to the west were admitted, each received two whole townships for a State university, and a few received more. Since 1889 large additional grants have been made. The Morrill bill of 1862, granting lands for the establishment of a college for instruction in agriculture and mechanical arts in each state, greatly stimulated the development of higher education by the State. As new states have been established, they have provided for a State university in their earliest State constitution, and created it as soon as they felt able to do so. In every state in the Western, North Central, and South Central groups we find the State university as an important educational institution within the state, and also in all of the states of the South Atlantic group except Maryland and Delaware. In the North Atlantic group, only Maine has established a State university. Some of these State universities, as, for example, the State universities of Michigan, Illinois, Wisconsin, and Nebraska, are among the strongest and most democratic of our American universities, and practically all are destined to be large and important institutions. Tuition in all is free, or practically free. The Land Grant Colleges as the institutions established under the Morrill bill of 1862 have been called, sometimes exist as separate institutions, and sometimes are combined with the State university. Most of the old slave-holding states have also provided some form of higher education for the coloured race. A national university at Washington has been urged since the days of Washington, and at times has seemed about to be realized, but so far has never been established.

**Special Education.** The education and training of the blind, deaf, dumb, feeble-minded, incorrigible and wayward has also been assumed by practically all of the states in the Union, and many cities also provide individually for the training of these same classes. A number of states also maintain State orphans' homes. Separate state institutions for the education of each class are maintained by most of the states, and where no state institution is maintained it is customary for the State to make arrangements for the care and training of its defectives in a public or private institution, within or without the State. E. P. C.

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**UNIVERSITIES, THE RISE AND GROWTH OF THE.**—Two words of continual occurrence in educational matters need to be explained at the outset in studying the subject of this article. In neither of the names—college and university—is there any essential idea of learning. A college is an association of any kind. The Archbishop of Canterbury and his suffragan Bishops of the Southern

Province, are collectively a college without any *habitat*. Trinity College is the name of a Society of Fellows and Scholars, and the house in which they reside is their Hall—*Aula Scholarium Societatis SS. Trinitatis*. A university is, in its original sense, a collective body or guild associated for some specific purpose. Its name has nothing to do with universal knowledge, not even with any kind of knowledge at all. Its history, in the restricted sense of an association or guild, is full of interest, and can be traced through many stages of growth and evolution, as though it were a living organism.

We see the modern university in the germ in the mediaeval schools to which students flocked in order to hear great teachers such as those who, in the twelfth century, were famous throughout Europe for their learning. Such a school was usually attached to a cathedral establishment or to a religious house, and was called a *studium*, or, on a larger scale, a *studium generale*, a place of study to which scholars from all parts resorted. The name *universitas* seems first to have been applied within such *studia* to associations of foreigners, formed for the purpose of mutual protection in cities where, as aliens, foreign students had no municipal rights. These *universitates* were modelled on the trade guilds then growing powerful. It is only as the former multiplied and secured their independence, their recognized standing within a municipality, and more and more power in the government of the *studium*, that the university became in the fifteenth century identical with the *studium*, and its name supplanted the other. One effective means they possessed for enforcing their demands. Not having, in the earliest period, any buildings of their own, and thus not being so closely attached to a particular place that they could not easily transfer themselves elsewhere, they could always use the threat of migration unless the city acknowledged the authority and position of their elected Heads or Rectors. In this period of development, between the eleventh and the fifteenth century, the *universitates* succeeded in bringing under their control alike the professors of the *studium* and their own constituents; and finally obtained the sanction and protection of the Holy See and of the Emperor. A member of a *studium generale* under such patronage would, on his attaining the degree of Master, receive the *jus ubique docendi*, the right to teach in any other *studium generale*; whereas a *studium generale respectu regis* could not confer that right. It is curious to find that Oxford, though its two applications for the sanction of a Papal Bull were not conceded, assumed that it possessed the *jus ubique docendi* both by long prescription and in virtue of its high standing. Cambridge, on the other hand, received the recognition of Pope John XXII, in 1318.

**Bologna and Paris.** In the early Middle Ages, two *studia generalia* attained such eminence as seats of learning that they came to stand as types or models for new foundations. These were Bologna and Paris. The difference between them lay in the fact that their constituent *universitates* were composed either of students, as at Bologna, or of masters or teachers, as at Paris. Consequently, accordingly as Bologna or Paris was the model copied, the later seats of learning throughout mediaeval Europe were either universities of students or universities of masters, and occasionally a combination of the two.

In Bologna, then, the *universitates* were associations or guilds of students, drawn thither by its fame as a great School of Law. At first, the number of *universitates* in a *studium* would correspond more or less closely to the number of the nations represented. At Bologna the process of unification quickly set in, and the many small *universitates* gave place to two large ones, composed respectively of Cismontani and Ultramontani. In these two groups the principle of nationality was recognized. To the former belonged Romans, Lombards, and Tuscans; to the latter, Spaniards, Gascons, Provençals, Normans, English and others. It is interesting to note, by the way, that the distinction by Nations—for that was the name by which the inner groups in the *universitates* were known—is preserved in some Scottish universities, and, in the two Proctors of Oxford and Cambridge, we trace the memory of a far-distant time when a distinction was made between Northern and Southern scholars, either group having its own proctor. But this distinction was of comparatively short duration, and we see the two proctors become, with the Chancellor, the executive of the whole corporation both at Oxford and at Cambridge.

Bologna, though it contained *universitates* of arts, medicine, and theology, was pre-eminently a Law School, in which the two *universitates* of Jurists, the Cismontani and the Ultramontani, had the predominance.

The *studium generale* of Paris was an offshoot of the schools of the Cathedral, the Chancellor of which conferred the degree of Master on a member of the *studium* who was presented to him with proper credentials. On his becoming a Master, he was admitted a member of the *universitates*, which, unlike Bologna, was composed, not of students but of masters. According to Dean Rashdall (*The Universities of the Middle Ages*, Vol. 2, Pt. ii), it was during the latter part of the period 1150 to 1170 that the University of Paris came into being. Like Bologna, it wielded with effect the threat of migration, and a long period of its history was marked by its struggle for freedom from the Chancellor's tyranny, and by the protracted efforts, ultimately crowned with success, of the Faculty of Arts to bring the superior Faculties of Theology, Canon Law and Medicine under the control of its rector. When this stage was reached at the end of the thirteenth century, the Chancellor had become a mere figure-head, possessing only the power of conferring the *jus ubique docendi*, which he exercised as representing the Pope. The real head of the whole University was the Rector of the Faculty of Arts, a potentate ranking above cardinals, archbishops, and peers of France. Patronized by popes and emperors and kings, and adorned by great teachers, such as Albertus Magnus, Guillaume St. Amour, Étienne Marcel and St. Thomas Aquinas, the University of Paris commanded the universal esteem of Christendom as the "First School of the Church," "The French King's eldest daughter"; and men even saw in its Four Nations the analogue of the four rivers of Eden. Its heyday was the thirteenth century, in which its most splendid intellectual achievements were gained. Later, with the growth of Gallicanism, it lost its international character, and its influence on the world outside it waned.

**Other Early Continental Universities.** It was said above that, in Southern Europe, the type to which the universities more or less closely



conformed was that of Bologna. In North Italy especially, where there were so many independent civic communities, the study of law was largely required, and the universities of Padua and Perugia, the former especially, challenged the pre-eminence even of Bologna itself as a school of law. Other universities sprang into existence in Siena, Vicenza, Naples, and Reggio. The universities of Spain, among which Salamanca was the most notable, were modelled on Bologna. In Germany, the Parisian type prevailed, but the universities there were of late growth, and, in the mediaeval period, German students, owing to the backward civilization of their countries, had to seek at Bologna, Paris, and elsewhere the teaching they could not obtain at home. The Reformation period it was that gave rise to the famous universities of Leipzig, Erfurt and Heidelberg. Prague, however, was a fourteenth century creation, as was also Vienna. The French universities were of mixed type, possessing features derived both from Paris and from Bologna. Sixteen provincial universities attained considerable fame, but three of them—Montpellier, Orléans, and Angers—were of outstanding celebrity, Montpellier as a School of Medicine, Orléans as a Law University, and Angers as a School of Civil Law. On the other hand, Toulouse, founded under papal auspices, was notable chiefly for the strength of its Theological Faculty, but later also for the training in law that it supplied for southern France. In fact, this attention to legal study, and particularly to the study of civil law, was a feature common to the French provincial universities in general.

We have seen how the University of Paris, though it began as a *studium* connected with the Cathedral schools, emancipated itself from the control of the diocesan chancellor. This was not quite what happened in the provinces. There, the connection between the bishop, acting through his chancellor, and the university continued longer, and in these the doctors or professors succeeded in obtaining the control of the teaching.

**Oxford.** Of all the universities that conformed to the Parisian model, Oxford was, as Dean Rashdall has shown (*The Universities of Europe in the Middle Ages*) the only English university which, in the Middle Ages, was famous throughout Europe. The celebrity of Cambridge is of later date. We may dismiss, as purely mythical, the legend that King Alfred was the founder of Oxford University, but, even so, conjecture, in the absence of complete documentary proof, has to be called in aid. The boldest, and the most satisfying, is that which Dean Rashdall puts forth in his treatise referred to above. It is that, Henry II having ordered all English clerks studying on the Continent to return home, a place of study had to be found for them. Before that date, A.D. 1167, there were schools at Oxford, but without organization so far as we know, and taught by independent scholars like Robert Pullen. There is evidence to prove that, after A.D. 1170, a large number of students were congregated in Oxford. What makes it not improbable that the origin of Oxford University is to be sought in a migration is the fact that some of the continental universities—Padua, Reggio, and others—did so originate. Add to this the facts that Oxford already possessed schools and was a place of some importance in the realm, and we are inclined to ask with Dean Rashdall, "If they (the students) did not go to

Oxford, where did they go to?" Put briefly, the ground for this hypothesis is that, before 1167, we hear of no *studium generale* there, and, after 1170, there has emerged the leading *studium* in England, a *universitas* of independent masters, not connected with any Oxford church or religious house. Without some such hypothesis, how else is the sudden appearance of a developed *universitas* to be explained?

In tracing the history of our earliest English university, we must remember that, until the reign of Henry VIII, Oxford was in the diocese of Lincoln, the cathedral city of which was remote from the town on the Thames. Hence it is that the Bishop's authority over the university was so exercised as to give little cause for friction. His representative, the Chancellor, was a Master of the *studium* and the Head of the Masters' *universitas*, being quite early in its history elected by the members of the guild. Thus the Chancellor became identified with the University. At Oxford, as at Paris and unlike Bologna, everyone, whether scholar or master, was a tonsured clerk, and, as such, was subject to ecclesiastical jurisdiction, which was exercised by the Chancellor, assisted by the proctors. Oxford, indeed, acquired a greater degree of independence even than Paris, in that its authority extended also to the administration of criminal law. It was this prerogative that enabled the academic body to reduce the townspeople to a state resembling one of servitude.

**Cambridge.** At Cambridge, the existence of a *studium*, with one or two higher faculties and certain privileges, may be assumed, for a papal Bull, issued in A.D. 1318, conceding to it the rank of a *studium generale*, was rather an official recognition of its already existing claim to be called a general place of study with the *jus ubique docendi*, which, it has been mentioned, was never officially conferred on Oxford, though it was exercised as of prescriptive right. The origin of Cambridge University seems to be traceable to another of those migrations of which mention has been made. As Oxford probably represents a migration from Paris in the late twelfth century, so Cambridge was a migration from Oxford in 1207, when the students in the latter place (the clergy being then outlawed by King John) came into conflict with the townspeople. Naturally, the constitution of the new *studium* developed along the traditional lines, and in due course we find at Cambridge a chancellor and two proctors as the University's executive officers, but ecclesiastical independence of the Bishop of Ely's authority was not achieved there until the fifteenth century.

In the mediaeval period, the importance of Cambridge as a teaching centre was inconsiderable. There are no early examples of conspicuous teachers like those, for instance, who established Oxford's claim to intellectual equality with Paris and, in the department of philosophy, even to superiority. Such names as those of Grosseteste, Kilwardby, Peckham, and Roger Bacon; of Bradwardine, Duns Scotus and Ockham among the schoolmen—not to enumerate more—warranted the well-deserved appellation for Oxford of *Schola secunda ecclesiae*. It was not until the period of the New Learning that Cambridge rose to the front rank and was able to contest Oxford's hitherto unchallenged primacy. The teaching of Ascham, Fisher, and Erasmus, for instance, attests its greatness, and the rise of the colleges during the



fifteenth century, and notably of the magnificent foundation of King's College, is a proof that Cambridge was deemed worthy to divide with the sister university the patronage of royal and noble benefactors.

The development of the college system within the University affecting, as it did, the disciplinary and educational arrangements of the latter, marks off Oxford and Cambridge from all other universities. Others, of course, had their affiliated colleges, but none on the scale of our two English universities. The colleges grew out of the more primitive halls, licensed houses in which a few or many students were lodged under the care of a master. It is to the genius of the munificent Bishop Walter of Rochester that the college system owes its birth. His secular foundation, first at Merton, and later at Oxford with the name of Merton transferred, became the model on which the subsequent colleges both of Oxford and of Cambridge were to be formed. But the story of the colleges must be followed under their appropriate headings.

**Other Universities of the United Kingdom.** In the Middle Ages, Scotland possessed only two universities, St. Andrew's and Glasgow, founded respectively in 1411 and 1450. Aberdeen was a product of the Renaissance, and Edinburgh belongs to the sixteenth century. Dublin, which consisted of Trinity College only, was an Elizabethan foundation, resembling Cambridge in some of its features.

To come to more modern times, there has been a remarkable increase in the number of new universities of an infinite diversity of types, some specializing in theology, some in medicine or law or science. The University of London began, in 1836, not as a teaching but as an examining university, granting its degrees to external students from all parts who were able to pass its tests. In the first years of the present century, it enlarged its scope and extended its usefulness by associating with it many colleges which had been working in isolation, and by establishing new professorial chairs. Its aim has been to organize the higher education of London. In the provinces, institutions known sometimes as university colleges, and others, such as the Yorkshire College, Leeds, have been promoted to university rank, and centres like Birmingham, Manchester, Sheffield and Bristol, now have their own universities. To a certain extent these modern foundations specialize in studies connected with the local industries, and in all of them there is a departure from the traditional type of curriculum so long maintained by the old English universities. The same may be said of the University of Wales, the constituent colleges of which are at Aberystwyth, Bangor and Cardiff.

Early in last century, (1831) the Bishop of Durham, Dr. Van Mildert, revived the plan conceived at the time of the Dissolution and favoured later by Cromwell of establishing a university for the north in that city. The great buildings of the Prince Bishop's castle afforded an ideal shelter for the Societies of University College and Bishop Hatfield's Hall. Essentially the University is a foundation of the Cathedral Church, the Dean of which is its head. In 1871, the scope of its teaching was widened by the founding at Newcastle-on-Tyne of the Armstrong College, an institution which has done an enormous service to Northern students in the various branches of science.

**American Universities.** America, however, is the home of modern universities. Their name is legion,

and their types present endless varieties, some being of the highest educational rank, some of little or no reputation. Certain of these universities are State-founded and endowed. Others are founded by private benefactors and assisted with State endowments. Others again owe their existence and maintenance entirely to the gifts of munificent millionaires, whose zeal for education might well be emulated in England, where owners of superfluous wealth could not bestow it better than on the financial needs of Oxford and Cambridge. The names of American universities often preserve the memories of their founders—Harvard, John Hopkins, Yale, Cornell, and the like. The first named, however, was founded by a seventeenth-century Englishman, John Harvard, and retains traces of its English origin. The rivalry between Yale and Harvard, the two earliest foundations, resembles the age-long rivalry of the universities on the Isis and the Cam. In America, what in quite recent times have come to be called universities were formerly known only as colleges. Even to this day the official style of Harvard University is the College of Harvard. This, of course, is not unnatural, as the American universities grew out of single colleges, unlike the mediæval universities of Europe, within which the college system developed as a later growth.

#### **Curricula, etc., of the Mediæval Universities.**

This is not the place to discourse at length on the educational curricula of the ancient *studia*. They varied with the constitutional type of the university and with the particular faculties to which one or another gave predominance, whether law, or theology, or medicine, or arts. Certain features, however, were common to them all. When Latin was the language of intercourse among all who made any claim to learning, it was possible for students to wander from university to university, to sit at the feet of teachers of wide repute. Consequently, the mediæval university was a cosmopolitan assemblage of learners and teachers. Among the multitude of scholars, the great majority were ill-lodged, ill-fed, and, unless they had the good fortune to be admitted of a college, were an uncontrolled mob, often of an age at which, in our time, they would be still at school. The way of learning was indeed difficult. The poor student, he who lacked the "wherewith to scholay," was in the pursuit of knowledge called upon to endure hardness to a degree which, in a softer age, would be intolerable. Then, as now, the universities were by no means entirely or mainly composed of studious men, but it argued a considerable zeal for learning that so many went through so much for its sake. Those who derived full advantage from residence in a university returned to the world as trained thinkers and clever debaters, highly educated according to the educational standards of their time, practical, and especially well equipped for administrative duties. It was through their instrumentality that kings and governors exercised their rule. A. REYNOLDS.

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*Cornell University—North-west Quarter*

*Photo by J. P. Troy*



*Syracuse University Campus, from North-east*

*Photo by Herbert F. Smith*

PLATE XCIII



**UNIVERSITY COLLEGE SCHOOL.**—This school, founded in 1830, was called the "London University School" until about 1865. For seventy-seven years it occupied a portion of the college premises in Gower Street, but on 26th July, 1907, handsome new buildings at Frognal, Hampstead, were opened by King Edward VII. There are three "sides," and the education given is excellent, carrying the best pupils through the matriculation and intermediate examinations of the University of London, occasionally to the degree itself. Many honours are won at the older universities also, and the old boys include men of distinction in every walk of life. There are five small entrance scholarships, and three leaving exhibitions to University College, awarded annually. There is also an exhibition to the Slade School of Fine Art which falls vacant every third year.

The school contains about 400 boys. A feature of the discipline is the delegation of certain executive powers to the twenty monitors, organized under a captain, a lieutenant, and six sergeants, vacancies in this corps being filled by selection partly by the head master and partly by the other monitors.

**UNIVERSITY EXTENSION COURSES.**—The University Extension movement dates from 1873, and originated in the idea, which had long been present in the minds of university reformers, of bringing the universities of Oxford and Cambridge into closer touch with the masses of the people, and of providing extended opportunities for higher education.

Half-way through the nineteenth century, proposals had been made for the establishment of universities in other great towns in the country, and later for supplying university lecturers in Literary and Scientific Institutes. It was not till 1871 that any of these proposals met with practical support. In that year a system was proposed whereby courses by peripatetic teachers should be given wherever suitable local arrangements could be made, and in 1873 the "Local Lectures" system was initiated. The proposal came from Professor James Stuart, then a resident Fellow of Trinity, Cambridge, who had delivered lectures under the auspices of the North of England Council in several cities of Lancashire and Yorkshire, and to audiences of working men at Crewe, Rochdale and other places. The experimental courses were found to be valuable, and in 1876 the London Society for the Extension of University Teaching was formed to carry on the work in London. In 1878 the University of Oxford began to make arrangements for similar lectures, but, after a year or two, the work was abandoned until 1885, when it was revived and carried on with vigour and success. The University of Durham was associated in this work with Cambridge until 1895, but since then has carried out its own schemes independently in the north-east of England. The Victoria University, Manchester, also took up the work, and, when the Yorkshire College developed into the Leeds University in 1904, it had already been associated for seventeen years with Manchester in the work of university extension. The movement has been taken up in recent years by the four universities of Scotland, and in 1889 a society was formed in the north of Ireland for the extension of university teaching.

**Range of Courses.** The extension work of a university falls under two heads—local lectures

and local examinations. The purpose of local lectures and classes is to provide a means of higher education for persons of all ranks and of both sexes engaged in regular occupation.

The Cambridge Syndicate recognize two objects—the supplying of systematic and continuous teaching in various educational subjects for persons prepared to make a serious study of them, and the awakening and stimulating of a general interest in the subjects. For the former object the syndicate provides systematic university extension courses, and for the latter short courses.

The special method for the systematic courses is the result of years of experience. The courses usually consist of twelve weekly lectures, each lasting an hour. A printed syllabus, in pamphlet form, is prepared by the lecturer, and supplied for use of students.

In the hour preceding (or following) the lecture, a class is held for those students who wish to study the subject more thoroughly. This gives the students an opportunity of coming into closer contact with the lecturer, of putting their difficulties before him, and of obtaining by questions and discussions greater familiarity with the principles of the subject.

The lecturer advises students as to the best books for studying the subject of his lectures, and the books recommended are supplied by the syndicate's library for the use of students during the course.

Questions are set by the examiner on each lecture, to be answered by the students at home. The answers are submitted to the examiner who corrects and criticizes them.

At the end of the term an examination is held by an examiner appointed by the syndicate. No students are allowed to take the examination unless they have attended regularly and have done the weekly exercises to the satisfaction of the lecturer. The examination is optional, but all who qualify by attendance and weekly exercises are requested to present themselves. It is usual to fix 75 per cent. of attendances as the minimum for qualification.

**Certificates Issued.** Certificates are awarded in connection with the courses, indicating that the student has pursued a regular course of organized work in an extension class. To those who are recommended by both lecturer and examiner a certificate of distinction is awarded.

The certificates awarded are terminal (pass, distinction, or honours) or sessional (pass or honours). The terminal certificate is awarded after examination on a course of twelve or more lectures with classes. Two short courses of six lectures are accepted as equivalent to a full terminal course. No student under 15 years of age is admitted to the examination. A student who obtains the certificate of distinction and submits to the lecturer, within twelve months of the conclusion of the course, an essay on a subject approved by the lecturer may obtain an honours certificate if the essay is recommended by the lecturer and an examiner.

The sessional certificate is awarded for courses extending over two years, or including twenty-four or thirty-six lectures. The honours certificate is awarded upon the same terms as in the case of the terminal certificate. The Cambridge Syndicate also awards the Vice-Chancellor's certificate and the affiliation certificate. The former is awarded to students who obtain four sessional certificates

and submit an essay of approved merit. If two of the sessional certificates are in honours, the student is eligible for the Vice-Chancellor's certificate in honours.

**Short Courses** are intended to awaken and stimulate interest in literature, history, science or art, and to serve as an introduction to the longer systematic courses, in places where university extension lectures have not previously been given. As a rule they are not given at established centres, except in cases where the longer course is found impracticable. The short course includes lectures, classes and weekly exercises as in the case of longer courses, but no certificates are awarded to students unless two short courses have been linked together to form an equivalent of a full course of twelve lectures and classes.

**Summer Meetings.** At Cambridge large gatherings of students take place under the auspices of the syndicate. These summer meetings are usually held in the long vacation, and last for about a month. A plan of work is arranged and carried out by lecturers from Cambridge and elsewhere. Students have facilities for study in the libraries and laboratories, and opportunities for conference on their extension work, and the meeting is found to provide a valuable stimulus to students, teachers, and the movement as a whole.

The University of Cambridge has the power of affiliating a local lecture centre to the University. Affiliated students then acquire the privileges of being recognized as students affiliated to the University, of obtaining the degree of Bachelor of Arts in six terms instead of nine at the University, and of entering for the Tripos examination without having passed the previous examination. To secure these privileges they must have pursued a course of study at an affiliated centre, and passed at some time an examination in arithmetic, Euclid (books I-III), algebra, Latin, and German or French or Greek.

The Extension Syndicate of each university requires that the responsibility for the course shall be undertaken by a committee specially formed for the purpose or by a responsible public body such as an education committee, a trade union council, or a committee of some institution.

In many cases a special university extension society is formed at the centre at which the courses are held. Such a society consists of a body of annual subscribers and resembles the literary and scientific societies to be found in most large towns.

Students' associations have been formed in connection with many university extension centres in order to carry out the work of the lectures more thoroughly. The extension committee and the students' committee work together to promote the success of university extension work in the town, and the students' association makes the existence and nature of the extension movement known as widely as possible.

The fees charged for courses vary in different universities and in different courses. They include all the lecturer's expenses as well as the hire of slides for illustrated lectures, and the copies of the syllabus supplied to students. The local committee provides all local expenses such as advertising, hire of rooms, lighting and furniture. The lecturers provided are selected from the most highly qualified teachers, professors and fellows of the University.

A periodical entitled *The University Extension Bulletin* is published three times a year in the interests of the university extension movement, under the official sanction of the education authorities of the universities of Oxford, Cambridge and London. It contains reports on the movement, official announcements, and articles on subjects of interest to students. The publishers are Hamptons, Ltd., 12 Cursitor Street, London, E.C.4. Local secretaries can obtain parcels of 12 and upwards at half the published price.

**Local Examinations.** Besides the lectures of the university extension courses, provision is made by the universities of Oxford and Cambridge for the needs of persons above school age in the higher local examination, while for schools both these universities hold local examinations graded as preliminary, junior and senior. (See OXFORD AND CAMBRIDGE SCHOOLS EXAMINATION BOARD.)

In the higher local examination the subjects are arranged in the following groups: Religious knowledge, English language and literature, a foreign language, mathematics, mental science, physical science, music, geography, and history. This examination is open to persons over 17 years of age, and to younger persons who have obtained senior local or matriculation certificates.

#### UNIVERSITY EXTENSION MOVEMENT, THE.--

The movement which is generally known as University Extension is only one of many manifestations of the new spirit which, during the last half-century, has infused and largely transformed the ancient universities. The term itself first became current at Oxford after the appointment of the first Universities' Commission, appointed by Lord John Russell in 1850. It was there applied to a number of schemes, then under discussion, whereby the advantages of a university education might be extended to "a much larger and poorer class than that from which students are at present almost entirely taken." Of these, one suggested the admission of students who should not be connected with any college or hall, a suggestion which matured in the non-collegiate system inaugurated by the passing of the University Education Act, 1867. Others suggested the establishment of cheaper halls or hostels; the permission now largely accorded to undergraduates to live in licensed lodgings; the admission of non-matriculated students to professorial lectures, and the like. Yet another was the scheme submitted to the commissioners by the Rev. William Sewell, then tutor of Exeter College, and afterwards founder and first warden of Radley College. Mr. Sewell propounded the following question: "Though it may be impossible to bring the masses requiring education to the university, may it not be possible to carry the university to them?"

In that question and in Mr. Sewell's answer we have the protoplasm of the movement that is now specifically known as University Extension.

Mr. Sewell's suggestion was that professorships and lectureships should be founded in "the great centres of the manufacturing districts, and in the midst of the densest population." It bore fruit almost immediately in the establishment of local colleges, several of which have since developed into universities. The college at Manchester, which bears the honoured name of John Owens, was founded in 1851; the Durham College of Science (now Armstrong College) at Newcastle in 1871;

the Yorkshire College, Leeds, in 1874; Mason College, Birmingham, in 1875, and others later. The Firth College at Sheffield (1879) and University College, Nottingham (1881), had their origin, like the more recent "University Extension" Colleges at Reading, Exeter and Colchester, in University Extension "centres" established in the several towns. There is, therefore, the closest historical connection between the Local Lecture movement and that for the multiplication of local colleges and universities.

Meanwhile an important step had been taken at Oxford, on the initiative of Sir Thomas Acland, Frederick Temple of Balliol (afterwards Archbishop of Canterbury) and others, for the improvement of secondary education, then in a very backward and chaotic condition. They suggested that the university might at least set a standard of knowledge by instituting examinations for boys and girls of school age. Thus there came into existence local examinations.

**The Local Lectures System.** But, if the university may legitimately examine students who have not matriculated, why not teach them also? The answer was furnished by Mr. James Stuart of Trinity College, Cambridge, who, on his own account, started courses of lectures in various provincial towns, and in 1873 induced the University of Cambridge to give official recognition to such courses. Thus the Local Lectures System came to the birth. In 1876 a society was formed under the presidency of Mr. (afterwards Viscount) Goschen for the provision of "Extension" lectures in London, the work being supervised by a joint Board consisting of representatives of the universities of Oxford, Cambridge, and London. Oxford appointed a committee, with Mr. (now the Right Hon.) A. H. D. Acland as secretary, to organize similar work in 1878. Some useful pioneering work was done, but Oxford did not take any large part in the extension movement until the appointment of Sir Michael Sadler (now Vice-Chancellor of Leeds University) to organize it.

Mr. James Stuart laid down the main lines of a movement which has since expanded with astonishing rapidity. The universities provide the central machinery, appoint the lecturers, approve the courses of study, conduct the examinations, and generally supervise the whole working of an elaborate system. In each town where an Extension "centre" is established there is a local committee (sometimes the existing Education Committee, or a Co-operative Society, or a Mechanics' Institute, or, more often, a voluntary *ad hoc* committee) which is responsible for all the details of local organization, provision of hall or classroom, advertisement, sale of tickets, etc.; and for the fees payable to the university. These fees vary, according to the grade of lecturer employed and the number of lectures given, from about 20 guineas for six lectures by a junior lecturer up to about 100 guineas for twenty-four lectures from a "Staff" lecturer. The fees include lecture, class, correction of essays, syllabuses, examination, certificate, and travelling library.

This enumeration suggests the main features of the system. It insists (i) that the *lectures* (generally 6 to 12) should be arranged in systematic courses and delivered at regular intervals, as against single lectures on a variety of topics; (ii) that each lecture should be followed by a *class*, for more detailed exposition and the establishment of

personal contact between teacher and taught; (iii) that students should be encouraged to (a) send in regular essays during the course, and (b) submit to examination at the close of it; (iv) that analytical syllabuses with hints as to reading, etc., be provided; (v) on a supply of standard books.

Oxford and Cambridge have established about 1,100 such centres, and have employed over 400 lecturers; London has had over 200 in the Metropolitan area, and the new universities have also done a considerable amount of work in their respective localities.

**The Summer Schools.** Since 1888 a new and exceedingly important feature has been added to the system as devised by Mr. Stuart. Every year, in August, the University of Oxford or Cambridge (now in alternate years) arranges a Summer School for extension and other students in the university itself. The nineteen Oxford meetings have been attended by an average of 1,000 to 1,200 students. A course of about 100 lectures, upon some specific subject, is organized, and the lectures are given by some of the most eminent teachers and scholars in the universities, and by distinguished specialists and men of letters from outside. These annual gatherings, attended by students of all classes and of all nationalities, not merely have proved to be of high educational value, but have also helped to bring scattered Extension students into touch with the university itself, and to give unity and coherence to the whole Extension system.

A very important outcome of the University Extension movement is the Tutorial Class system (*q.v.*), which has rapidly developed during the last eight years.

The Extension movement, though constantly improving its methods and reaching out in new directions, has now passed beyond the experimental stage, and may be regarded as having taken its place in the English system of higher education.

J. A. R. M.

**UNIVERSITY REFORM.**—University reform might naturally be assumed to be concerned with such questions as the proper part to be played by all the universities of the country in the system of national education, or how we can contrive *e.g.* that England shall no longer lag behind other countries in the proportion of her population who receive a university education. In practice, however, university reform has come to mean the reform of Oxford and Cambridge. The reasons for this are simple. The newer universities respond easily to changes in the educational ideals and needs of the country. They have fairly simple governing bodies in which both the teaching staff and the outside public are represented. They are very largely supported by public money, and thereby subject to public control. Oxford and Cambridge, on the other hand, have very complicated governing bodies. The teaching staff has, of late years, got considerable power in these bodies, but the ultimate power in both universities still rests neither with the teaching staff nor with specially chosen members of the general public, but with a haphazard collection of M.A.'s. Both universities with their constituent colleges are in possession of very large endowments and have, up till now, neither required nor obtained assistance from public money to more than a very small extent, though there are signs that this state of affairs will not continue. Above all, both universities are universities of colleges. The colleges of Oxford

and Cambridge are independent corporations with their own statutes and governing bodies. They are immensely richer than the universities, and do the greater part of the teaching. They are very slightly under the control of the universities and not under the control of anyone else.

**Need for Reform.** The independent position thus enjoyed by the universities and colleges of Oxford and Cambridge, has, no doubt, certain advantages as contrasted with French or German universities; but it naturally gives rise to the belief that there is a great disparity between the educational ideals and needs of the nation and the principles on which the endowments of these universities and their colleges are administered, a belief for which, in the past, there has been abundant justification. Further, both Oxford and Cambridge, being residential universities, are much more expensive than others. Hence has arisen the belief, and again not without some justification, that they are more expensive than they need be, and, above all, that these two great national institutions are too largely confined to the rich. The assumption, then, that the problem of university reform means the reform of Oxford and Cambridge, is not based on any impression of the inferiority of these universities to others, but rather on the belief that all independent and wealthy corporations need outside criticism and reform from time to time, and on the sense of how important it is that the unique powers and resources of these universities should be used to the best possible advantage to the nation.

**Reformation in the Past.** University reform in the past has been mainly concerned with the relations between the universities and their constituent colleges. At the beginning of the nineteenth century, when the agitation for reform began, both universities were still entirely in the hands of the colleges, and these were celibate and clerical societies. There can be no doubt that the domination of the colleges had been ruinous to the universities, and that the first essential, in both Oxford and Cambridge, was to restore the reality and power of the university. The legislation of the fifties gave the universities new governing bodies, awkward enough but independent of the colleges. The legislation of the seventies and early eighties, by the abolition of tests, by the permission of marriage to fellows and other changes regarding fellowships, very largely remodelled the colleges, and by its financial clauses re-established the teaching power of the universities. The result has been that both universities, having now achieved real being as universities, have worked along with the colleges in steady and continued progress. The two commissions of last century made the universities largely free to work out their own salvation and they have made good use of their powers.

**Future Reform.** While there is substantial agreement as to the wisdom of past reform, there is much less as to what is required for the future.

It is held by many that all that is needed is to accept the general relations between the universities and colleges which now exist, and to complete the arrangements which are required to give the teaching staff complete control over the university. The great proportion of college fellows are now teachers. There is thus little difference of purpose between specifically university and college teachers. The university should be given rather more control over college finance than it now enjoys: this

might be exercised in the election to fellowships. Inter-collegiate arrangements for lecturing and tutoring should be extended rather more widely. The *only* important reform required, except, possibly, the admission of women to full membership of the university, is the abolition of the veto of Convocation or Senate. If this were passed, Oxford and Cambridge would then be governed by their teaching staffs, and these may be trusted to keep the university in touch with modern conditions. This may be called the ideal of reform from within, and these are roughly the lines followed by Lord Curzon's *Principles and Methods of University Reform*, proposals for the reform of Oxford, published in 1909, and still being put into legislation. These proposals have led to the reform of council, congregation and the faculties, and the institution of a Finance Board. They include a proposal for a real university entrance examination and they have greatly improved the self-government of the university.

At the other extreme may be put the views of those reformers who look on the deviation of Oxford and Cambridge from the ordinary type of university as an unmixed evil, and would reduce the colleges to hostels, make membership of a college voluntary and concentrate all the teaching of the universities in a strong professoriate, enriched with the endowments of the colleges. The endowments should be sufficient to make both a strong and a cheap university.

Against such root and branch proposals, it may well be urged that the participation of the colleges in the teaching of the university, while it did much harm when it practically suppressed university teaching, has with the revival of the university, produced the tutorial system which makes the Honours schools of Oxford and Cambridge so pre-eminent in all the universities of the world. No one who is familiar with the different types of universities can deny the great advantages of the tutorial system as it exists in Oxford and Cambridge. That system might be more intercollegiate than it is, but without the colleges it could not exist. It is and must be more expensive than the ordinary professorial system, but in the Honours schools, at least, it is not wastefully expensive. It must be admitted, then, that the colleges which make Oxford and Cambridge unique, are of very great educational value, and that the first ideal described above is right in accepting, subject to minor modifications, the general relations now existing between universities and colleges. The real objection to the ideal of reform from within is that no institution can be quite satisfactorily reformed from within any more than it can be reformed by those who do not understand it.

**Proposed Reform in the Government of the Universities.** The remaining alternative is to cure the defect which now makes university reform synonymous with the reform of Oxford and Cambridge. At present these universities govern themselves without the help of external opinion, but are subject to periodical and violent interference from without in the shape of royal commissions. They will continue to be subject to such interferences so long as their isolation makes the general public ignorant and distrustful of them, and makes the universities less in touch than they might be with the nation. If men who understand the educational needs and ideals of the nation, not necessarily in any sense members of the

university, had a position of real influence in the governing bodies of both universities, there should, in time, be no more need to talk of the reform of Oxford and Cambridge than there is to talk of the reform of other universities. The problem of expense must be solved along the same lines.

The complaint against the expensiveness of Oxford and Cambridge is partly based on a belief that the system is more expensive than it need be, but, even more, on the belief that a necessarily expensive kind of education is largely given to men who are not intellectually worth it. If Oxford and Cambridge are to retain a special system of education, expensive because it is special, it is essential that this special system should be open not to those who happen to have the money to pay for it, but to those who are really worth it. Outside criticism working with inside experience can do more than anything else to take away both these grounds of complaint.

A. D. L.

**UNIVERSITY SETTLEMENTS.**—These, like other great social movements, owed their origin to individual initiative. The example of Edward Denison, the lofty and sympathetic personality of Arnold Toynbee, and the noble idealism of Samuel A. Barnett were the inspiring forces which led to the foundation of Toynbee Hall (*q.v.*) in 1884. All the Settlements which have since come into existence, in our own and in other countries, though marked by many minor differences, have represented in varying degrees the same ideals as the first.

Yet, though University Settlements arose through the influence of the three personalities that have been named, and though they serve various social interests, both their motive and their method are predominantly educational. To begin with, the powerful influence of Frederic Denison Maurice (*q.v.*), and the example set by his Working Men's College (*q.v.*), had profoundly affected, not only the founders of the settlement movement, but the whole circle in which they lived and worked. In the next place, the rise of the University Extension Movement (*q.v.*) had the threefold object of bringing the universities into closer contact with great populations, of extending the advantages and, as far as possible, the methods of university education to the industrial classes, and of securing for individual students some of the advantages of an educational community. Furthermore, Barnett was the prophet of the great truth that the value of life is measured by its spiritual quality, and not by its material quantity. He taught this doctrine both to rich and to poor. Fellowship in the pursuit and enjoyment of truth, beauty, and goodness was for him the secret both of individual and social well-being. The practical result of such a conception of life must needs be educational, alike in ideal and method. Again, the appeal of Toynbee and Barnett was to university men who felt uneasy at retaining the exclusive privileges of academic life and culture. Alike, their hunger after a wider fellowship, their sense that the drawback of English life lay in its poverty of ideas and the scantiness of its knowledge, and the fact that the only goods that they could share were just these needful ideas and knowledge, decided the positive aim of the settlement movement. And this positive aim was further strengthened by a twofold reaction. First of all, against the inadequate ideal of the College Mission,

which sought to plant clergymen among the poor, to help them by religious patronage and effort from above, limiting the share of the college in the work to the gift of subscriptions and other external help. The other reaction was against the mechanical methods that then prevailed in elementary education. A more generous conception of education in itself, a stronger appeal to the intellectual curiosity and imagination of individuals, and a more human fellowship in the acquisition of knowledge were felt to be necessary. Moreover, inadequate as were the achievements and wooden as were the methods of elementary education as then understood, it had done something to create the capacity and to stir the desire for more.

Hence the educational type created for all Settlements by the establishment of Toynbee Hall was not accidental. The individuality of Samuel Barnett gave personal expression to great spiritual tendencies, and created an institution in which all these tendencies might work together in complete harmony and in a congenial sphere. That the first Settlement should be a University Settlement, that it should be the greatest centre of University Extension work, and that it should be a place where university men met "East Enders" in a free fellowship of giving and receiving that approached the relations prevailing in an Oxford or Cambridge College—all these things were of the essence of the undertaking.

**Educational Activities of University Settlements.** Many practical educational consequences have followed. To begin with, all University Settlements have sought to become centres of education, and of education thus conceived. They have had to undertake many social tasks that are not primarily educational. Adverse circumstances, here and there, have prevented them from completely realizing their ideal. Yet, whatever the range of their work, they have sought to permeate it with the great principles of which Barnett was the leading exponent. Under their influence, directly religious work, if undertaken, the social work of clubs and similar institutions, even the organizing of charity, have tended to become educational, in the widest sense of the term.

Not only so, but Settlements have brought all kinds of reinforcement to the educational agencies of the districts in which they have been founded. Those who are charged with carrying on elementary, secondary, and continuation schools in the poorest districts have looked to the Settlements to supply sympathetic and helpful managers, to undertake responsibilities for the care, after-care, and recreation that are requisite if educational effort is to be successful, and to represent educational interests both with administrative authorities and with the general public. The Settlement has been the local centre to which the schoolmaster and mistress have looked for influence and support in aid of education wherever it is imperilled by adverse social, economic, and material conditions.

In addition to all this, the Settlements have made a great contribution from the ranks of their residents to the central administration of education. Men and women who have gained their experience in Settlement work have passed out to take their places at the Board of Education, on the School Board, on the County Council, and in every kind of voluntary educational enterprise. Not a little is owing to them for the lifting of educational administration out of the ruts of religious and



party controversy, and for freeing it from the bonds of narrow and mechanical routine. Those familiar with the work of education and the conditions under which it is carried on at the present day will agree that the educational influence of Settlements is not less important now than it was thirty years ago. All successful philanthropic effort, be it religious, legislative, or charitable, must still display the transforming touch of those who believe that the spiritual means the pursuit and enjoyment of truth, and that the method of friendship is indispensable both to the pursuit and to the enjoyment.

J. S. L.

**UNIVERSITY TUTORIAL CLASSES.**—Among the instances of the translation of fundamental ideals into common practice during the opening years of the present century, the University Tutorial Class Movement stands out prominently, and it has affected to such an extent the minds and outlook of the more able of the working men and women of England as to have proved a distinct factor in the national mind in time of war as in time of peace.

Those who were responsible for the initiation of the movement claim that it is simply a re-statement of the method of Plato, not indeed discovered by research, but by the simple working together of adult minds, which has formulated an educational method untrammelled by influences that would make it conform with the practice of existing schools. Not, indeed, that there did not exist in the social life of the time much, if not all, that the tutorial class had adopted as its own. The educational practice nearest to it is obviously the tutorial system in vogue at Oxford, and rapidly spreading through the universities of the world, which, after all, is but an academic expression of that freedom of discussion which obtains whenever men or women meet in adult school, trade union or West End Club.

**Principles underlying Class-work.** It was, however, left to the Workers' Educational Association (*q.v.*) to devise the actual class. It knew the need, for its working men and women members had revealed it, and it saw that the University Extension movement (*q.v.*) provided in its organization a means whereby it might secure admission to the inner life of the university. For the tutorial class is inevitably of the very essence of a university.

The first groups of students, which were restricted to not more than thirty in number, adopted certain principles. The group should choose its own subject, and no one should be admitted to study who did not desire unmistakably to study that subject. There should be no weak or forced students. As all in the class would have something to contribute out of their own experience to the development of the subject (obviously the subjects chosen would have some relation to the life and problems of the people), there should be freedom of discussion; the beginner should not be afraid to teach or the tutor to learn, and the time of discussion should at least equal the time of the lecture. There being no room for the indifferent, no student should join the class without having previously pledged himself or herself not to stay away from any meeting unless compelled by unavoidable circumstances, and, as the power of expression in writing is inalienable from study of a university standard, each student should be under a pledge to write essays. Finally, since examination

at a set time, in a set place, is not harmonious with the working of the adult mind unused in adolescent life to such methods, the essays written throughout the course should form the basis upon which to estimate the development of the student. Seeing that each class should approximate to that of a university course in hours, it was decided that the period of study should not be less than three years. There should be no diplomas, as the granting of such would possibly attract students with motives other than those of pure study.

**Growth of the Movement.** Tables on page 1719 indicate the growth of the movement.

A contemplation of the growth of the movement reveals some interesting facts. Every university and university college in England and Wales participates in the work, and, with exceptions due mainly to preliminary organization, administers through a Joint Committee, upon which the representatives of working people are equal in number to the representatives of the university. In this way the association of working people and the universities has had good effect, and the desire for the welfare of the universities is becoming more deeply embedded in the hearts of the whole population, even of those who are unable to join in any scheme of university education. The universities have also constructed for their common purpose a Central Joint Advisory Committee, which is the only body in Great Britain that is composed of all the universities and university colleges of England and Wales. The movement in the Dominions sprang from a consideration of the subject at the First Congress of Universities of the Empire in 1912.

The work has now been taken up by the six universities of Australia, and by the four colleges of the University of New Zealand. Beginnings have been made in the University of Toronto, and in the McGill University of Montreal, and in South Africa at Johannesburg. The latest records reveal a uniform success, based on a natural understanding of the principles.

There can be no avoidance of the fact that the method is costly. The classes demand for their working only tutors of first rate power; not necessarily with public gifts, but of fine scholarship and companionable mind, not puffed up by possessing more knowledge than their characters can carry. Up to the present, financial help has proceeded almost entirely from universities, the Board of Education and local education authorities. The Board of Education will make a grant of £45 to a healthy class each year of the course, and, where they are satisfied that adequate provision exists for students needing tutorial classes of the ordinary standard, they may make special grants in aid of more advanced courses, extending over one year under special conditions. Class fees are small, because it is essential that they shall not bar the way to the poorest. The movements of working people are at this moment considering anxiously how they can best afford financial support, though at the same time not obscuring the claim that, if their scholarship is worthy, they have a right to share in the national provision of it, whether through university or statutory aid.

Those who seek a landmark in the history of the classes look back to the National Conference at Oxford on 10th August, 1907, and to the

## THE BRITISH ISLES.

	1908-9.	1909-10.	1910-11.	1911-12.	1912-13.	1913-14.	1914-15.	1915-16.	1916-17.	1917-18.	18-19.	1919-20.
Classes	8	32	72	102	117	145	152	121	99	121	152	228
Students	237	1,117	1,829	2,485	3,176	3,234	3,110	2,414	1,996	2,860	3,799	...

OVERSEAS DOMINIONS. (Work begun 1913.)  
CLASSES.

	Australia	New Zealand	Tasmania	Canada	South Africa
1914-15	14	5	3	2	1
1915-16	21	15	5	3	—
1916-17	58	25	6	1	2
1917-18	42	24	5	1	2
1918-19	44	34	11	7	1

consequent report of the Oxford Joint Committee which stands high among educational documents.

**Educational Value.** The first eight classes, held in connection with the University of Oxford, revealed indisputably the capacity and devotion of the students. It was the quantity of the quality that surprised the Oxford critics. There are those who feel that this estimation, though correct, has been trumpeted out of proportion to its significance, but it was inevitable in the establishment of a movement making such high claims, yet based upon new and, to many people, surprising foundations.

The best estimate of the educational value of the classes lies in the regulation of the Board of Education which states that "the instruction must aim at reaching, within the limits of the subject covered, the standard of University work in Honours." There are few people who have realized the powerful sympathy and practical help accorded by the Board of Education. Those who know the movement best affirm that on no single occasion or in any detail has the Board been obstructive. It has throughout been a developing force. A special inspection by Professor L. T. Hobhouse and Mr. J. W. Headlam, in 1909, was followed in 1912 by the appointment of two whole time inspectors, one of whom was joint secretary to the original Oxford committee. It was, therefore, obvious that the Board strove to secure men who, whilst capable of detached judgment, possessed enthusiasm for the development of the work.

A notable pronouncement on the value and future of the classes is also to be found in the Report of the Royal Commission on the University of London. (Paragraphs 79, 410 and 411.)

Out of the classes have grown Summer Schools at Oxford, Cambridge, Bangor, Durham, Saltburn and London. A hard rule of study regulates them, and again the Board of Education has proved helpful, whilst scholars unable to teach in places removed from the universities welcome the opportunity of doing so at the summer school. Students there come under the influence of the most eminent of English scholars, and, in their turn, influence them. A much clearer understanding of industrial and social problems has thus risen in the universities.

The problems that beset the classes have been numerous. Attempts made to reward students with diplomas have been frustrated by the good sense of the students, and thus a properly organized class need fear no deterioration in student level.

The first Oxford tutors are still at work, but

there has been no such persistence in other universities, and many of the recent appointments to Chairs in English universities have been of men with tutorial class experience.

The strain of teaching tells on many tutors after some years, and the fact that new universities have made appointments independently of the supply of students produces an anxiety too wearing for all but the strongest.

If the future may be read from the past, it is certain that the method is fundamental, and that it is essential to the complete life of a university which desires to be other than a mere school of training.

For the first time in recent years, universities have been able to strike roots in the industrial community. A large part of the spiritual and intellectual force of the nation must necessarily lie among those working men and women who comprise six-sevenths of the people. By the methods of the tutorial class, the experience of this vast mass is not hermetically sealed within it, but passes up to the university, which is thus enabled the better to fulfil its function as a centre expressing the highest and best thought of the community.

A. MANSBRIDGE.

**UPHOLSTERY, THE TEACHING OF.**—The upholstery trade of the present day is divided into many parts in most large furnishing firms, which, although they take all departments of the trade, divide them in such manner that a girl never learns more than one particular branch in her workroom. Care, therefore, should be taken to place a girl desirous of becoming an upholsteress with a firm where instruction is given in most, if not all, of the various branches of the trade. Upholstery departments may be enumerated thus: curtains, draperies, pelmets; loose covers for all furniture; blinds, roller and festooned; carpets and underfelt; "fancy" for cushions, lamp shades, etc.; also a men's department where all furniture is stuffed and covered.

Some firms have a department where they make all their own furniture-frames. These are then sent into the upholsterer's workshop to be stuffed and covered. Women or girls work here with the men to sew, where necessary, the various parts not usually fastened with tacks. In this department, also, they make wool and hair mattresses, bolsters and pillows.

A good, capable needlewoman, who can adapt herself to circumstances, need never be out of employment, and a girl who can take up *any* branch of upholstery, being very useful in a

workroom, would certainly obtain permanent employment.

Many people have a wrong idea of the kind of needlewoman required for upholstery work, and think that, if a girl or woman can sew, nothing further is necessary; that fine, neat, and good sewing does not matter. A visit to some of our best upholstery firms (who have always some very fine work on exhibition or sale) will dispel this erroneous impression. Some of the materials are very expensive and require most careful handling and manipulation; e.g. thick-pile silk velvets, damasks, brocades, tapestries, soft silks of all kinds, and other beautiful stuffs. Unless, therefore, a girl or woman shows ability as a needlewoman, she is not likely to meet with much success in the workroom.

**Apprenticeship.** It is not usual to pay or bind by agreement a girl apprentice, although this is done with the boys in the men's department. She is paid a small wage on entering the trade, and usually acts as shop or errand girl for a year or two. She will naturally learn all she can during that time, and then finally be put to the work and taught the trade.

**Trade Schools.** There are three day Trade Schools in the metropolitan area, as well as various evening schools where upholstery is taught. At these, the student will learn upholstery in all its branches under the best conditions. The students commence with instruction in the making of blinds, various curtains, draperies, pelmets, case-ments, bed furniture, bedding, mattresses, bolsters, and pillow cases, and loose covers for all kinds of furniture.

They are also taught the men's work, e.g. locking and slipping, sewing on all trimmings, fringe, braid, gimp, leather work, carpet work, etc.

Two years is the period allowed for attendance at the Trade School, but part of this is taken up by compulsory attendance at other classes, to the disadvantage of their "trade" studies, although these other classes are beneficial from an educational standpoint. If practicable it would be better to make the attendance for three years, the third being exclusively devoted to trade work, whereby the business side of the training can be more emphasized and realized. It has been said that a girl learning a trade should not be expected to have other lessons such as English, geometry, history, literature, and physical exercises; but in these days it is realized that a girl can never learn too much, and, from an educational point of view, it is essential, after leaving the elementary day schools, for her to continue these lessons. By the addition of this third year's training the number of improvers placed in our workrooms each year would be restricted, and what is thought to be a future difficulty would be overcome.

**Characteristics of the Good Upholsteress.** It does not follow because a girl is slow that she will not make a good upholsteress, because it has been proved by experience that some of the slower girls turn out to be some of our best workers.

The difficulty of convincing an employer of this comes when a girl has to be placed in a work-room, because, in these days of rush, speed is required, and at the same time the best of workmanship.

Machining, too, enters largely into the student's work. All the girls are given a similar piece of sewing-machine or handwork, so that the class-mistress can soon judge her workers. By this

method she will find out whether a girl is best fitted for a machinist or for a hand worker, and thus the pupils are specially trained for that branch in which they are most likely to become efficient skilled workers.

For Trades Union reasons girls are not supposed to learn the cutting-out part of upholstery, but they are now making a move for themselves in this direction, and it is only a matter of time before this drawback is removed, as already, in some of the smaller firms, women are employed as cutters. The aim of the trade school is to raise the standard of the student, to give her a better outlook on life, to send her out better educated, more intelligent and more physically fit to take up the routine of business life.

A. M. S.

**UPPINGHAM SCHOOL.**—This school was founded in 1584 by the Rev. Robert Johnson, afterwards Archdeacon of Leicester. Originally a grammar school, it was developed by Edward Thring, head master from 1853 to 1887, into a great public school. It contained only twenty-five boarders when Thring took it over; he left it with 330, to which number, moreover, he had limited it. It now possesses thirteen boarding-houses, with about 450 boys. In 1863, new buildings, from the designs of Edmund Street, the architect of the Law Courts, were erected, including the great schoolroom, chapel, swimming-bath, and the first gymnasium set up in any English public school. Thring's methods resembled those of Arnold at Rugby, control being based on the *praeceptor* system of subordination in house and school, but more importance was attached by him to general social responsibility. An outbreak of scarlet fever in April, 1876, threatened the break-up of the school, but Thring (*q.v.*) and his assistant masters, with great courage and enterprise, removed the entire school to Borth, on the coast of Cardiganshire, where they remained until the following spring. During this absence, the town was systematically drained. On the death of Thring, in 1887, Dr. E. C. Selwyn succeeded to the Headship, and held it till 1907. During this period considerable development took place both in building and in numbers. In 1908 the Rev. H. W. McKenzie succeeded Dr. Selwyn, and almost immediately organized a Modern Side. Among the many improvements effected by Mr. McKenzie during his eight vigorous years of office were the building and equipment of a new Music School, the installation of electric light, the acquisition of additional playing fields, and the erection of a very fine organ.

Music has always been a feature of Uppingham life, and the school songs are nearly as well known as those of Harrow. There are three main divisions in the school, a lower, a middle, and an upper. In the lower division the subjects emphasized are English (including History and Geography), Latin, French, and Elementary Mathematics, in addition to Divinity. Drawing and Natural Science are also taught in this division. There is no division into sides in the middle school in which a boy's general education is continued. Specialization begins in the upper division, choice being offered between the Classical Side, the Engineering Side, and two branches of the Modern Side. The engineering classes are successful, and there is a special Army department. Seven valuable entrance scholarships are offered annually, and there are at least three leaving scholarships awarded every

year, besides sixteen exhibitions at St. John's, Sidney, Clare, and Emmanuel Colleges, at Cambridge, for which the two Rutland schools, Uppingham and Oakham together have the preference.

**UPSALA UNIVERSITY.**—This was established in 1477 by a Bull of Sixtus IV on the model of the University of Bologna. The founder was James Ulfsson, Archbishop of Upsala, and the first faculties were theology and arts, and by the close of the century law was added. The rise of Protestantism in Sweden led first to the closing of the university in 1588, and to its re-opening in 1595 as a Protestant institution. At present its faculties are philosophy, law, medicine and theology, organized in 1852. The students usually exceed 2,000, of whom about two-thirds are in the faculty of philosophy (arts and science). Since 1870, women have had the right to become regular students and to take the degrees in the medical faculties under the same conditions as men; and in 1873 this right was extended to the faculty of philosophy. One of the famous students of Upsala was Linnaeus, the naturalist.

**URSULINES, THE.**—(See ROMAN CATHOLIC CHURCH, THE TEACHING ORDERS OF THE.)

**URUGUAY, EDUCATION IN.**—The Republic of Uruguay, the smallest of the independent states of South America, is situated on the east coast, and is bounded by the Argentine Republic, the United States of Brazil, the Atlantic Ocean, and the Rio de la Plata. Its area is 72,210 square miles; and its population in 1913 was 1,279,359, about one-third of the inhabitants occupying the little department of Montevideo, which contains the capital. There are upwards of 200,000 European immigrants, including about 2,000 British; the remainder are native-born Spaniards, Indians, and mestizos.

The country, consisting mainly of undulating grassy plains which support immense herds of horned cattle and enormous flocks of sheep, is almost entirely agricultural and pastoral. The population in the rural districts is therefore very scattered, and the problem of education is considerably complicated by this fact.

**Historical Sketch.** Though the River Platte was discovered in 1516, the hostility of the natives prevented all attempts at colonization until 1624, when the Franciscan Fathers made a few settlements in the department of Soriano, one of which, Santo Domingo, may be regarded as the cradle of primary instruction in Uruguay, for these missionaries were concerned not only with the promotion of Christianity, but also with the teaching of reading.

Cattle were introduced between 1600 and 1620, and for nearly a century the shores of the country were visited by few except buccaneers and other adventurers. Then the Portuguese and Spaniards, in their attempts to capture each other's trade, founded successively the towns of Colonia (Portuguese), opposite Buenos Aires, and Montevideo (Spanish).

The priests of the Church at once undertook the work of education; and a little later the Franciscans established themselves in Montevideo and shouldered the burden. The Jesuits also came to the city and opened a college, but they were expelled from the country as early as 1767, the

Franciscans being suppressed in 1838. In 1795 the first school for girls was established at Montevideo by Doña Clara Zabala de Vidal, and by the beginning of the nineteenth century a few boys' schools, both public and private, had come into existence at Paysandú, Soriano, Maldonado, and Canelones.

Education suffered severely during the revolutionary period which began in 1811, though the patriot José Artigas did his best to repair the damage and founded the "National School." In 1816 the Brazilians seized the country, and during their occupation the Lancasterian Society was established, which created great public interest in education by means of lectures, discussions, and publications, and at Montevideo opened for boys a free school conducted on the monitorial system. The results of this experiment were so encouraging, that in 1825 a training college was established for the instruction of teachers in Lancasterian methods, the foundation of primary schools in many towns was ordered, inspectors were appointed, leaving certificates were arranged for, and the study of Latin was introduced.

In 1828 the independence of Uruguay was again acknowledged, and under the new constitution a good deal of attention was paid to public instruction. New primary schools were opened, the remuneration of teachers was increased, a General Director of Schools was appointed, and the educational needs of the coloured population began to obtain recognition. The University of Montevideo was founded also, the special School of Commerce having been set up some years before. But these reforms were not planned scientifically, so that the educational arrangements lacked coherence.

The great war with the Argentine Republic (1843-1851) undid much that had already been done and, in part, paralyzed efforts for progress, though in 1847 the Institute of Public Instruction was organized, which became the supreme authority in scholastic affairs and greatly improved the educational administration. But, between 1847 and 1877, politicians, patriotic and single-minded as many were, touched the difficult problem with unskilful hands; one very unhappy change was the transfer of authority from the institute to the municipalities, a decentralization that produced a heterogeneity which was almost chaotic.

The task of regenerating and unifying public instruction fell to José Pedro Varela, a young man who, in 1868, had founded the Society of the Friends of Popular Education. He had studied the educational systems of Europe and the U.S.A., and was well known as a sound authority on pedagogy. A famous book, *Scholastic Legislation*, which he wrote at this time, revealed him as an educationist of great constructive ability. The scheme outlined in this work was adopted by the Government on 24th August, 1877. With insignificant modifications it continues to be the basis of the existing educational system. Varela, unfortunately, did not live long enough to see his plan working completely and harmoniously; he died on 24th October, 1879, when he was only 34 years of age. But his short life was distinguished by a remarkable achievement, and he is immortalized as the Reformer of Uruguayan teaching.

**Organization of Primary Education.** His scheme, embodied in the Law of General Education, provided for a General Board of Primary Instruction,

composed of a president (the Minister of Public Instruction), two vice-presidents (the first, the National Inspector of Primary Instruction), three other members, and a general secretary, all appointed by the Government. The Board examines, gives diplomas to, appoints, and dismisses teachers; publishes an educational magazine; selects text-books and approves and prescribes programmes and rules for schools. The National Inspector visits every school in the Republic at least once a year, and supervises the Departmental Inspectors.

In each department of the State there is a committee of primary instruction, consisting of a member of the administrative council of the municipality as president, the departmental inspector as vice-president, and three residents elected by the council for three years. Their duties are to see that enough schools are provided (there must be a school in every place where there are fifty children of school age), and to carry out the regulations of the General Board. There is also a sub-inspector who helps the inspector to secure the efficiency of the schools and to render reports; to distribute text-books, apparatus, and the like; to organize teachers' conferences, and to create public interest in the improvement of education.

The diploma of teacher is obtained in a training college or by passing an open examination before a committee appointed by the General Board. Head teachers secure their posts by competition, and their positions are permanent.

There is complete liberty for the establishment of private schools, the sole provisos being that their teaching must not be contrary to morality, law, and order, that they must be open to inspection, and that all necessary information about their schemes and methods must be supplied when required.

Since the death of J. P. Varela, small changes have been effected in the system of national education, all making for greater efficiency. Thus, more importance is now attached to physical education, statistics have been compiled with regularity, scholastic hygiene is attended to, the number of rural schools has been increased, and two residential colleges for the training of teachers have been founded. Many schools for boys have been placed under head-mistresses, and non-teaching directors are now appointed to large schools with an attendance of 400 or over. Selected teachers have been sent abroad to study such subjects as "Slöjd," handwork (cardboard modelling, plaiting, etc.), and kindergarten methods; and a uniform time-table has come into use.

Education is compulsory and gratuitous, even books and apparatus being provided by the State. All religious teaching was suppressed in April, 1909. The classes in the rural and first-grade urban schools are mixed, but in the latter the boys must not be more than 9. The programme in these covers three years. Thereafter, in the towns, the pupils proceed to the second and third-grade schools, spending two years in each; the great majority of children end their school-days, however, without entering the highest schools at all. These third-grade schools are well-equipped and lead direct to the university. There are only two of them, one for each sex, and both are at Montevideo.

In the rural schools, the pupils seldom stay even so long as three years, for as soon as their

strength permits they are requisitioned by the daily demands of labour. But, short as it is, this period of education has done a great deal to civilize and soften the community, and the children generally are able to read, write and cipher, and know something of the history and geography of their native land.

Ever since 1892 there has been a kindergarten school working with great success at Montevideo. Others, no doubt, will soon be established elsewhere.

Illiteracy among adults is, of course, still very common. In 1907 schools for adults were authorized: there are now forty-nine of them with 3,076 pupils on the books.

Great care is now taken of the personal health and development of schoolchildren, and no pains are spared to make their surroundings healthful and bright. To this end an advisory medical body was set up in 1908, the six doctors forming it paying great attention to eyesight, hearing, sanitation, etc., as is done in other countries.

**The Curriculum.** The study of agriculture is obligatory upon teachers, and appears in the syllabus of all schools, both rural and urban. In the department of Rocha there is a School Park, where practical agriculture may be pursued and arboriculture encouraged. Rocha also possesses a higher commercial school, where, besides other subjects, mercantile arithmetic, book-keeping, commercial correspondence, and languages are taught.

The programme of studies in the ordinary primary schools of the three grades includes reading, writing, arithmetic, drawing, composition, grammar, geography and history (especially of Uruguay), civics, ethics, algebra, geometry, elements of physiology, hygiene, natural history, agriculture, singing, and gymnastics; and, for girls, domestic economy, sewing, embroidery, and the management of the sewing-machine. The teaching is given in Spanish. The full syllabus, of course, is aimed at rather than accomplished.

In 1913 there were 1,224 public and private schools with a roll of 113,620 pupils. This number is equivalent to 8.9 per cent. of the total population of the country. The average cost of each registered pupil was 20.38 pesos, i.e. £4 6s. 8d.

**Teachers.** There were 426 schoolmasters and 2,280 schoolmistresses. The annual salaries paid to head teachers are: 1st grade and rural, 720 pesos (£150); 2nd grade, 840 pesos (£175); 3rd grade, 1200 pesos (£250). After twenty-five years' service teachers, and other officials, can retire on full salary, and at death half the salary passes to wife or mother, unless and until a second marriage is contracted, or to the children; sons enjoy the pension until they are 17, daughters until their marriage. Teachers may retire on full salary for reasons of ill-health after ten years' service.

In the training colleges a four years' course is required for the diploma of 1st grade teacher; five for 2nd grade, and six for 3rd. There are usually about 50 students in the men's college, and 250 in the women's college. A Government grant of 15 pesos a month (about £3) is made to each student. There are six Normal Institutes in six of the departments, in addition to the two colleges at Montevideo. Practising schools are attached to each of the latter.

**Other Schools.** There is an excellent school for the education of deaf and dumb children at Montevideo of recent foundation; it has at present about fifty pupils.

The secondary schools are chiefly private, and prepare for entrance to the university, the military school, and the theological seminaries.

The University of Montevideo contains faculties of law, medicine, mathematics, and social science. There is also a school of commerce and a veterinary school. About 180 students attend the school of arts and crafts, and there are forty or fifty cadets in the military school.

A Rural Association has lately been formed to promote agricultural education. The work of this body is of great importance, since Uruguay is essentially an agricultural country.

Culture at Montevideo is aided by the National Library of about 50,000 volumes and 10,000 manuscripts; and by the National Museum, which contains a valuable educational library and museum.

**USHER.**—This was the name applied, until the nineteenth century, to an assistant master in a grammar school. Cotgrave derives the word from Lat. *ostiarius*, a doorkeeper, and an ostiarius was one of the lowest orders of officials in the early Christian Church. At some period the ostiarius may have been engaged in teaching, and in the statutes of the earliest grammar schools the under-master or second master was called an usher. William of Wykeham provides in the statutes of Winchester School for an usher. The name was not in general use, as in some cases the under-master was called a vice-monitor. At Merton College, in the early fourteenth century, the name *ostiarius* was used to mean a scholar and doorkeeper. By the fifteenth century the name usher had become more general and was educational rather than ecclesiastical. The charters of some of the new schools provided salaries for ushers, though generally the usher was a servant of the head master only and received a very small remuneration. The office of an usher improved during the seventeenth and eighteenth centuries, but in the nineteenth declined, and the name disappeared entirely from the best schools.

**UTOPIAS, EDUCATIONAL.**—The idea of a golden age in which social conditions were formerly far superior to the present has often involved educational data. The old Greek fable of the Island of Atlantis, an account of which in verse Solon had intended to write as an *opus magnum*, unfortunately, was not written.

This fabled Atlantis became a reality in the discovery of America, and lent a name to one of the most remarkable of Renaissance Educational Utopias—that of the New Atlantis of Francis Bacon (*q.v.*).

**The Republic.** The close connection between politics and education was clearly seen by the Greeks. The perfect State is not possible without fully developed individuals, and, similarly, well educated individuals cannot be expected outside an environment in which the State gives guarantees of good government. The ideas of the perfect State and the perfect individual are, in a sense, different aspects of the same problem. Thus Plato, in his search for the just man, requires us to look in the community, where we shall see the element of justice, which we look for in the individual, in large letters. The problem of justice is a problem of right relations among the various factors in the community, but the same factors are present in the individual, on a smaller scale. If, therefore, the

State is to become ideal, it must be governed by ideal men, *i.e.* philosophers. "Philosophers must be the princes."

All education is to be directly concentrated upon affording such surroundings that, by the principle of imitation, rightly chosen, children shall be trained by an education fitting its recipients to be ideal leaders in the community. Plato sees that this involves the training of women as well as men. The object of the highest education—that fitted for philosopher-princes—is "to turn the eyes of the soul to the light," and this, in its highest development, means an absorption in "the good," so as to bring the right, the true, the beautiful into all action and thought. The child is to see and hear only what is thoroughly good, and free from evil in stories, literature, history, and particularly in religion. The earliest training is in "music" and "gymnastic" (see PLATO). The later training, beginning at 17 or 18, consists of studies in sciences, with a continuation of music and gymnastic, till the age of 20. Further scientific studies continue till 30, and this is combined with military training. Dialectic follows until 35 years of age. Then the philosopher-to-be is engaged in the public service for fifteen years, when the whole previous education will be tested as to its adaptability to experience of life. From 50 onwards the selected princes or guardians, says Nettleship, in his exposition of Plato, will alternately study "the good" itself, and in the light of it govern and organize the State.

They will be the supreme council in the State, dividing their time between theoretical study of the good and practical government. Thus Plato distinctly identifies education with the whole of life. In our modern views, to understand Plato, we must take account of democratic developments, and not be content with the education of merely the princes. The problem inevitably suggested by Plato's *Republic* to the modern mind is: How far can universal education move in the direction of aiding the production of the highest human development amongst the greatest number of the community? Probably Plato's answer is the only way of help—*viz.*, only by bringing about the aspect of education, as a life-process, to which schools, colleges, etc., are merely institutional aids.

**More's Utopia.** Plato's *Republic* dates back to the first quarter of the fourth century before Christ, and the *Utopia* of Sir Thomas More (published at Louvain in 1516), written in Latin, was the outcome of the new Renaissance spirit, which showed itself in the revived study of Greek. In the Middle Ages may be noted the *Blanquerna* of Ramon Lull (*q.v.*). Though so early in date, the *Utopia* of Sir Thomas More is essentially modern.

More represents a sailor (who was not unskilled in Greek), Raphael Hythloday, who had been a companion of Vespucci, but, on his own account, had discovered the ideal island commonwealth of *Utopia*. More introduced points borrowed from Plato (*e.g.* the community of property, and the training of women, some of whom he would be willing should even become priests). Further than Plato, he makes much less of warfare, and far more of books. There are to be no idle classes; all must labour for the good of all. Money is despised, and, like the Brethren of the Common Life whom More had seen in Flanders, citizens give themselves up to "the free liberty of the mind and the garnishing of the same." "Every man"

(in the sense of the word that includes woman), learns one craft; the more laboursome crafts are entrusted to men; the easier (e.g. the working of wool and flax) are allotted to women. But a man may turn to another and be trained to it and, "by adoption, be put into a family of that occupation." He may learn two crafts and practise only one, but it must be that craft of which *the city has the greater need*. Both Plato's *Republic* and More's *Utopia* require the absolute subordination of the individual's preferences to the good of the community. For those appointed to pursue studies, there is daily study of good literature, and others attend lectures as they wish. Every mother nurses her own children; should circumstances require a nurse for a child, that child will afterwards take the nurse "for his natural mother." Children serve their elders at table. All children are instructed, and men and women throughout life, bestow some spare hours on learning. The vernacular is to be used (though More is writing in Latin). Utopians are very expert in astronomy and astronomical instruments, though they never dreamed of astrological lore. They are skilled in meteorology and cosmography. The Utopia thus joined the idea of learning with social reform.

**Eudaemon.** In 1555, Gaspar Stiblinus published his *Eudaemonensium Respublica*, in a volume *Coenopaedia*. Eudaemon is the capital of the island Macaria, in the Eastern Ocean. This city consists of highly educated citizens, devoted to the State, as in *Utopia* and the *Republic*, regarding their own interests as subordinate to those of the State. The military side is prominent. The religion is often the evangelical model, with régime of considerable similarity to Geneva. No freedom of religious thought is allowed, and all views are apparently censored. The lower classes are entirely shut out from any share in government. A prominent educational suggestion is the public display of moral texts from Greek and Latin classics throughout Eudaemon.

**Respublica Christianopolitana.** In 1619, John Valentine Andreae produced at Strasburg, his *Reipublicae Christianopolitanae Descriptio*, which considerably influenced Comenius (*q.v.*). Like the latter's *Janua Linguarum* it had 100 short chapters dealing with a journey and a shipwreck, in which the author is driven on to the island Caphar Salama and comes upon Christianopolis, its town. Citizens live in the highest peace and religion. There is a description of a college, of a library, of painting, of a laboratory, of a picture gallery, and an account of the teaching of physics, mathematics, grammar, rhetoric, language-teaching, logic, arithmetic, geometry, music, astronomy, history, ethics, politics, theology, medicine, jurisprudence, and so on. Teachers are chosen from the *best* citizens only, for only the men who care most for the State will care for the child. They are chosen only after having shown discrimination in judging wits. The hygienic condition of pupils is fully regarded; good wholesome food, clean clothes and beds, frequent cleaning of linen, regular washing of the body. The aims of instruction are first to worship God, then to inculcate pure words and manners, and then to train the intellect. Children are trained for an ideal citizen's life on earth, and for citizenship in Heaven. Boys and girls are to be taught: boys in the morning, girls in the afternoon, and matrons as well as learned men are to teach the latter. "I do not know," says Andreae, "why

this sex should elsewhere be excluded from learning (literature), for by nature it is by no means less docile." Free time is to be spent in orchards (*pomaria*) or in open air exercises, such as wrestling, ball playing, and taming horses, if the pupils are old enough. Latin, Greek and Hebrew are the chosen languages. But beware of too great a variety of subjects for weak intellects. Both instrumental and vocal music are encouraged. Choirs of children march two and two through the streets singing Psalm 127.

**The City of the Sun.** In 1623 was published the *Realis Philosophiae Epilogisticae* of Thomas Campanella (1568-1639). In this work was contained the *Civitas Solis*, the City of the Sun, which had been written earlier, whilst Campanella was in prison. The City is divided into seven rings (after the seven planets) with four main streets leading (as in Andreae's *Christianopolis*) to the four points of the compass. These seven rings are on successively higher plains, until raised far aloft, on the top of the hill, is a temple. Over the altar is a globe of the heavens and one of the earth, and the vault of the dome contains representations of the solar system. All subjects of knowledge are epitomized into *one* book, which is read aloud to the people. Not only on the walls and dome of the Temple, but on all the walls surrounding the seven circuits, are the finest pictures displaying visual representations of all the sciences. The interior wall of the first circuit is devoted to mathematics; of the second, precious and common stones; of the third, trees and herbs; on the fourth, birds; on the fifth, large animals; on the sixth, mechanical arts. On the exterior walls are displayed inventors, heroes and benefactors of mankind. "They laugh at us who exhibit a studious care for our breed of horses and dogs, but neglect the breeding of human beings." They have all things in common. Both sexes are instructed together and learn languages, as well as general knowledge, by *walking round the walls and studying the historical representations*. Pupils then learn useful trades, e.g. shoe-making, cooking, metal-working, carpentry, painting. By their seventh year, they have studied mathematics "on the walls" and are then further tested as "to the bent of their genius." No one is allowed to over-work or to be idle. Men of weak intellect are sent on the farms.

**Bacon's New Atlantis.** The *New Atlantis* of Sir Francis Bacon is placed by Mr. Moore-Smith between 1622-4. It is a Utopian romance of a College of Research. It is not America but an island between Peru and Japan. King Solomon established in this island a College of Research called Solomon's House, fully equipped with apparatus of every kind, and with fully trained and experienced scholars and investigators, who regarded research as scientific religion. From this college might come the interpretation of nature which would in the end "bring about the relief of man's estate."

"It is no exaggeration to say," says Prof. S. S. Laurie, "that, were all the universities, technical colleges, laboratories, botanic and zoological gardens of Europe and America rolled into one, Bacon's great pansophic ideal would even then be only approximately attained."

**Hartlib's Macaria** was published in 1641. A traveller gives a description of Macaria to a scholar. The Utopia described is mainly political and industrial, and is directed by councils for husbandry, fishing, trading by land and by sea, and one for



new plantations. The parson of every parish is a good physician and carries on both functions. No divine may publish a new opinion to the common people. He may dispute a new view before the Great Council. If he "abides the grand test of Extreme dispute," his view is accepted as truth and he may preach it.

**The Nova Solyma.** In 1648, *Nova Solyma* or the *New Jerusalem* was published, and edited by the Rev. Walter Begley in 1902, with a translation, and a comprehensive equipment of introduction and notes. Mr. Begley describes the *Nova Solyma* as very full of advanced theories of education, including University Extension schemes, equal opportunities for all, military exercises, the volunteer movement, technical schools for the poor, etc. Mr. Begley was, however, wrong in attributing the work to John Milton. Mr. Stephen K. Jones has established that the author of the work was Dr. Samuel Gott.

**Harrington's Oceana.** James Harrington, in *Oceana* (1656), advocates State education in noticeable words: "A man is a spirit raised by the magic of Nature. The work of idleness is mischief, but the work of industry is health. To set man to this, the commonwealth must begin betimes with them, or it will be too late; and the means whereby she sets them to it is education, the plastic art of government." The education of a man's children is not to be wholly left to the parent. The State has a stake in it. Harrington allows one exception; i.e. when a parent has only one child. He suggests adequate State schools; "strict inspection," not only as to proficiency of the children, but even as to the schoolmaster's "manner of life and teaching." Punishment to be inflicted on any parent not sending his children to school, which may be of the parent's choice and, if able, "at his own charges; and if he be not able, gratis, till they arrive at the age of 15 years." Harrington, however, failed to provide for the education of girls.

**Later Utopias**, with educational aspects, may be named—

1822. *L'Association domestique agricole*, afterwards published 1838 as *Théorie de l'unité universelle*, in which Charles Fourier declares that "man is a being made for Harmony." (Cf. R. Owen's *New Harmony*.) The dominant tastes in all children are—

(1) Rummaging or inclination to handle everything, examine everything, etc. (2) Industrial commotion, asking for noisy occupations. (3) Aping or imitative manner. (4) Industrial miniature, a taste for miniature workshops. (5) Progressive attraction of the weak towards the strong. By such a psychological analysis, Fourier prepares the way for devising educational methods (of a somewhat Utopian character) for exercising and developing the "tastes" to useful ends.

1825. *The New Harmony* of Robert Owen (q.v.).

1840. *Voyage en Icarie, Roman philosophique et social*, by Stephen Cabet.

1871. *Erewhon* of Samuel Butler (q.v.). F. W.

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**UTRECHT UNIVERSITY.**—(See NETHERLANDS, THE UNIVERSITIES OF THE.)

## V

**VALENCIA, THE UNIVERSITY OF.**—As a memorial of the victory of Navas de Tolosa, King Alfonso VIII of Castile founded a *studium generale* at Valencia in 1501 by uniting the cathedral school of divinity with another supported by the civic authorities and giving instruction in medicine, law, and the arts, both of these institutions dating back to the middle of the fourteenth century. Subsequently, other colleges were incorporated and the new university enjoyed considerable fame during the whole of the sixteenth century. After a long period of decline it was reconstituted in 1848, and now comprises the four faculties of philosophy, natural science, law, and medicine; the average number of students being 1,700. The sixteenth century buildings are extensive but of commonplace appearance; the library, of about 50,000 volumes, was despoiled of many treasures by the French in 1812. There is a valuable gallery of paintings by Velazquez, Juanes, Goya, Ribera, and other Spanish masters.

**VALIDITY.**—This may be defined as the truth and justification of an item of knowledge or belief. Logic is concerned with the validity of judgments as mental acts. Testimony is sifted and examined in courts of law in order to test its validity.

**VALLA, LORENZO (1407-1457).**—One of the first philologists of the fifteenth century, and the earliest leaders in the revival of ancient literature. He was born at Rome, the son of a scholar, and was educated by Leonardo Bruni. He learnt Latin and Greek, became professor of rhetoric at Pavia, and for a long period carried on a controversy with Poggio, the celebrated Italian humanist (q.v.), answering his *Invectives* with *Antidotes*. His reputation as a scholar depended largely on his treatise *The Elegancies of the Latin Language* in six books, a work which spread rapidly through the schools, and was used as a text-book for a great part of the sixteenth century. Erasmus thought highly of this work, as well as of the author himself. In it the author displays great discernment and



power of research. A *History of King Ferdinand*, written at the request of the King himself, led to attacks on Valla by jealous contemporaries, to which he replied in four books, in which he again displayed his profound understanding of the Latin tongue. His other written works include Latin translations of Thucydides, Herodotus, and Homer. (See also CLASSICAL LEARNING AND CRITICISM.)

**VALLADOLID, THE UNIVERSITY OF.**—Founded early in the thirteenth century, the *studium generale* of Palencia was removed to Valladolid about the year 1250. It enjoyed great prosperity and renown throughout Europe during the sixteenth, seventeenth, and eighteenth centuries. The Scots College, opened at Madrid in 1633 and later transferred to Valladolid, was for many years the chief seminary for the education of Scottish Catholics, who were denied opportunities in their own country. The architecture of the university buildings is of the seventeenth century and very rococo; the library contains many rare and valuable manuscripts. The number of students has declined in modern times, though there are complete faculties of natural science, literature, philosophy, medicine, and law.

There is also a pontifical university at Valladolid, which was set up by Pope Leo XIII in 1897: it was formerly a seminary.

**VALUES IN EDUCATION.**—The value of a thing depends upon its suitability for the purpose or aim proposed. Educational values are dependent upon the educational aim, and this in turn rests upon a conception or philosophy of life. Philosophies of the hedonistic or utilitarian or perfectionist type will involve corresponding notions as to the purpose of education, and will hence place corresponding emphasis upon particular instruments of education. To few, however, is it given to frame consciously a systematic conception of life; a great part of the community has formed its views, partly as the result of an inherited tendency or disposition, partly as the sub-conscious result of the play of environment, without any intentional or purposeful reasoning process. A still greater part of the community has no notion of life's purposes, and therefore cannot be said to have true educational aims. Nevertheless, it is approximately, and in a truly democratic country absolutely, correct to say that the educational aim of the State depends upon the social, political, and moral views of the whole community—upon what the community as a whole feels to be its highest good. At the same time, the purposes of State administrators may be so carefully hidden from the majority of the citizens, or so coloured, as finally to induce the citizens to give their assent to aims quite opposed to their natural ways of thinking and feeling.

The thinking part of the community possesses certain notions as to the aims which education must seek to achieve, has certain ideals which it regards as all-important, and insists that the educational system shall be such as will give a proper place to those ideals. Influence is brought to bear upon statesmen, legislators, and educational bodies in order that these views may be realized. The State, however, is not always greatly influenced by these persons in its administration of education.

A great diversity of views exists with regard to these aims. Some place stress upon the training of character, others upon culture; some select personal

or social morality, others adherence to a particular religious creed. Of those who possess a closer acquaintance with the educational machine, some aim at what is called "discipline," others at providing the children with some general power to do things, at forming the many-sided, practical citizen; some, again, insist that education shall fit the man to do some one particular thing well.

There are some who regard the possession of knowledge as the vital purpose of education; and others, again, who demand that the school shall train the pupil's power to think, either in special or general directions. Character, culture, morality, and religion are commonly regarded by those who wish to see education occupy itself with such objectives, as ultimate ends; discipline, knowledge, and thinking power would be acknowledged by their votaries as secondary aims subservient to higher ends. In confused thinking, however, the latter are often placed on the same level as the former; whereas, strictly speaking, they are educational values which are means to more remote aims.

**The Danger of Using Ambiguous Terms.** Such terms as "character," "discipline," and "knowledge," suffer the usual fate, and mean different things to different minds. The connotation of any one of them may, or may not, contain the connotation of one or more of the others. To many, for example, character or culture is inconceivable without a religious basis. For some, the State religion forms an essential part of culture, and even of character. Discipline, again, is by some conceived as self-control with regard to definite specific sides of life; by others, with regard to *all* conduct. To some it expresses the idea of prohibition with regard to different kinds of pleasure, to others the idea of positive guidance of conduct, strength of will positively expressed. It is even the belief of some that "discipline" involves the possession of a particular kind of knowledge or ability. In all cases, it would probably be admitted that discipline is only the process, and that the disciplined individual is the end in view. The term "knowledge," too, suffers from ambiguity. It may mean mere information, scrappy or systematic, or it may mean the power to employ the knowledge in useful directions, either to some specific and limited department of life or to wide and general purposes. The word may, to some, connote also the power to judge and reason in special or in general directions.

It is necessary to recognize this diversity of significance in the above terms, for the varied meanings are responsible for a great part of the confusion of thought with regard to educational values. It is probable that a remarkable amount of real agreement among educationists would be discovered if the terms were more clearly defined.

**Curriculum.** Subsidiary to these aims, and logically dependent upon them, is the subject-matter of instruction. According to our different views of the purpose of education, we shall desire to provide particular kinds of subject-matter and particular types of bodily and mental exercise. The instruments of education we shall desire to see suited to the aim. Hence, ultimately, the term "educational values" will be made to refer to the relative worth of the various parts of human knowledge and activities. And the question becomes: "What shall we teach the children of the nation?" or: "What is most worth teaching

them?" In other words, we have to decide what the curriculum shall be; what subjects and what facts within those subjects are most worth learning; what activities of our highly civilized community are most worth mastering; what knowledge and what powers are of highest educational value to children with reference to the aims we have in view.

Divergencies of aim will naturally produce differences in the curricula of schools, even of those of the same type. And yet, since the practice of mankind is often superior to its theories, these differences are not so great as might be supposed. This is partly due to the reason previously stated, that the connotations of the terms expressing educational aims cover one another to a considerable extent. Where narrow views of culture and of character prevail, contradictions in estimating values are sure to arise. For example, independence of character or originality might be partially sacrificed to the desire to hand on to our pupils the traditional learning and culture of the past. When it is clearly realized that our educational aim must include *all* the highest ideals of mankind, and when the nature of these ideals is more exactly understood, only then will it be possible to place reliable values upon the elements of knowledge and ability. One thing is certain; these ideals cannot be attained by means of a narrow curriculum. The school will have to represent the real world in all its typical aspects—man and Nature, thought and action. The good, and even the evil sides of life must be presented, the latter naturally only to such an extent as the pupil's stage of development makes expedient.

**Disciplinary Value and Formal Training.** The notion of the "disciplined" mind, when it becomes the educational aim, has a considerable influence upon the values assigned to the various departments of knowledge. It is thought by some that certain studies are essential, and of supreme value, because of the training or mental discipline they are supposed to afford. Nature study, for example, is regarded as indispensable because it is said to develop the powers of observation and memory; grammar because it is "the logic of the elementary school," or, in more usual language, because it trains the power to reason. In higher education, the study of the classics is still urged for the alleged reason that it results in producing the best type of mind—sharpened in its entire range, in memory, observation, attention, imagination and judgment. It is also said to produce accuracy, and other qualities which may be regarded almost as virtues; and to give rise to ideals which influence all departments of the individual's life. Arguments of this kind are to be heard wherever a new "subject" is suggested for the school, or whenever the position of a "subject" under suspicion is attacked.

The question of "discipline" involves the further question of formal training. Arguments of the kind just indicated must be met by asking for rigid proof of the facts asserted. General impressions even of sincere and successful teachers are quite insufficient. The onus lies upon those who make the assertions to prove them; to show, for example, that the general memory is strengthened by practice in learning poetry by heart; that a course of botanical study produces more acute observation in other and quite different fields of study; that a course of training in formal logic produces ability to reason equally well in a game of chess, a financial, or political, or domestic problem.

During the last ten or fifteen years considerable attention has been given to this question. Experimental work has been carried out, chiefly in Germany, America and England, to ascertain whether, and to what extent, this transfer of power takes place. On the more purely pedagogic side, Meumann in Germany, Thorndike and many others in America, Winch and Sleight in England, have published results which are in some degree contradictory; although the view that transference is, as a rule, remarkably small seems now to have found general acceptance. In any case, enough investigation has now been carried on to provide proof that memory, attention, imagination, judgment, and other powers of the mind, are not "faculties" which can be sharpened or developed *generally* on some specific material, but that each is a large hierarchy of powers, one member of which *may* undergo development not only independent of, but sometimes to the detriment of other members. Thus the power of judgment with regard to probable weather *may* be strengthened altogether independently of the power of judgment with regard to the outcome of a war. And so with memory and other "faculties." Some writers continue to discuss this matter without paying sufficient attention to the meaning of the word *may*. It is not asserted that training in a specific direction does not "spread" and spread widely; experiment proves that it may, and also proves that it may not. The youthful, or immature, unthinking mind will have little chance of reaping the *general* effects of *specific* training; the person who has sufficient industry or power of thought to note carefully how his specific training can be turned to account in other directions, how methods used in acquiring one set of facts may be applied in acquiring others, will have in his hands the key which will open many doors of knowledge—otherwise each as difficult to open as before training. Concepts of his method will enable him to attack new work in an intelligent manner, but will not enable him to dispense with the "practice" which the conquest of each new domain of ability demands.

Since the mind, especially the immature mind, appears to work in this "compartmental" manner, it seems correct to infer that our educational salvation lies, not in giving a fictitious value to what are sometimes called "disciplinary subjects," but in making certain that our pupils come into direct touch, as far as possible, with *all* the typical sides of life. At the same time, the disciplinary side must not be neglected; the connection between the domains of knowledge and ability must be gradually brought home, and help given in forming concepts of method which will bestow the power of tackling new work.

**Intrinsic and Relative Values.** Whichever way the problem of values is attacked, the same conclusion is reached, viz., that that knowledge and capacity is of highest value to the pupil which is representative of the world about him. One important result of such a conclusion will be to avoid the common and specious error of endeavouring to evaluate material suggested for the curriculum by considering what disciplinary influence it possesses, whether of the intellectual or emotional kind. In evaluating material, all we need to consider is its *intrinsic value*. Using such a standard, it seems possible to arrive at the relative values of the parts of human knowledge and skill; values which it is almost needless to say will

fluctuate with social, economic, and other conditions.

Many attempts have been made to fix the relative values of subjects, and subject-matter; nearly always, however, with the intention of satisfying two standards: the standard of intrinsic values, and that of discipline. So great confusion has resulted that many educationists have come to the conclusion that it is, even for the primary school curriculum, an impossible task. Professor Dewey and Mr. Raymont seem to be of this opinion. Professor Bagley, on the other hand, notwithstanding his views upon discipline, appears to evaluate the elements of instruction at any rate partially on the lines already criticized. Professor Findlay attempts to estimate values by a consideration of traditional values, on the assumption that permanent past values have proved their worth. The ignorance of masses of the population has resulted in the formation of another standard of values known as "utilitarian," which in its best form is expressed in the demand for a thoroughly practical education.

The formula of intrinsic values will cover all cases; but there is no doubt that in its applications to education in general, it will undergo modifications. The values of the different branches of instruction will vary according to the individual, the sex, the geographical and social position, and the age of the pupils. It is none the less reasonable to believe that for the masses of primary, and possibly secondary, school children up to the age of 12, curricula built up on the principle of "intrinsic" values should exhibit only unimportant differences. The need for specialization after that age will bring about more important changes, although the need for a liberal, wide education is permanent, and should not be neglected to satisfy the eager demand for special knowledge.

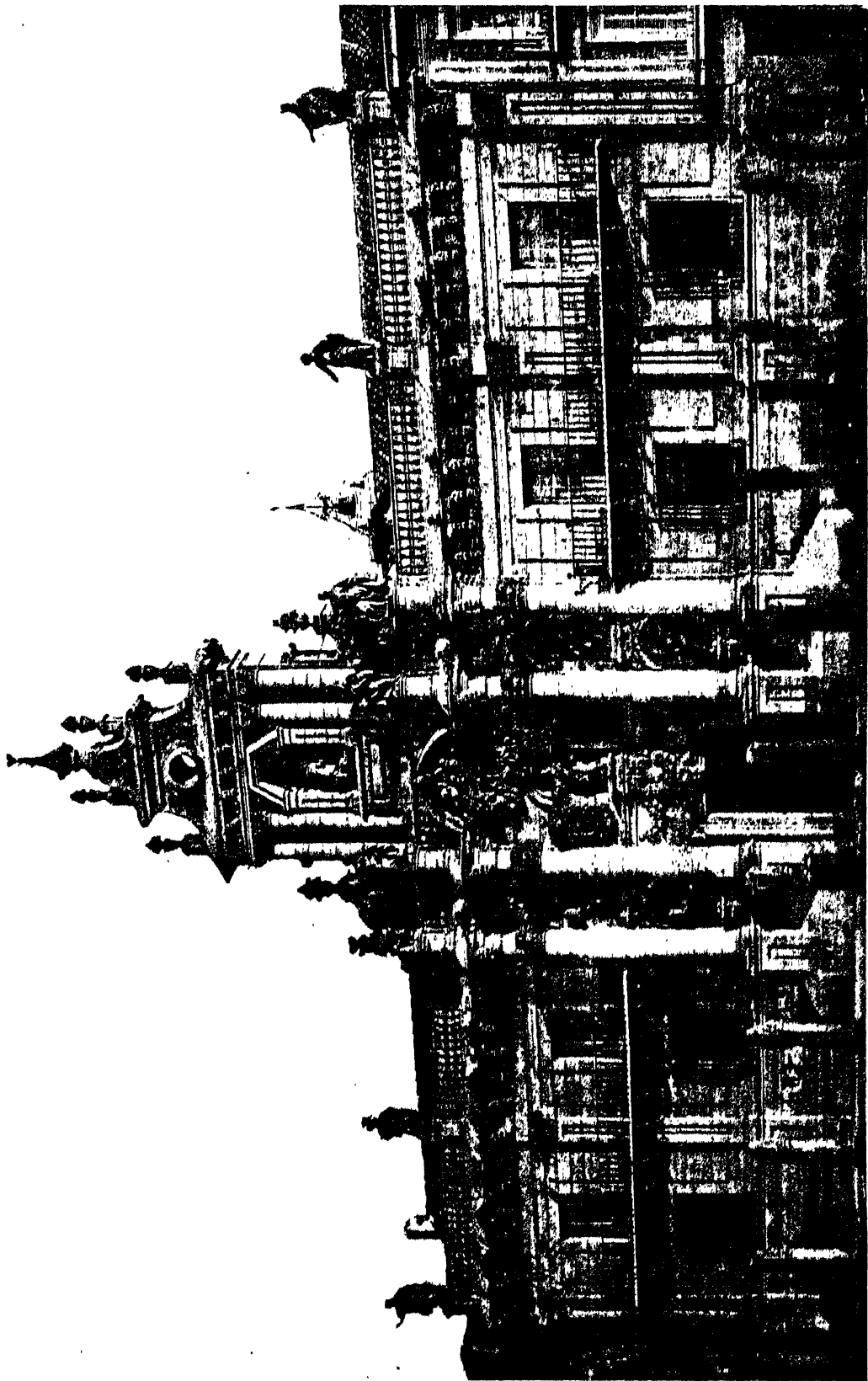
The question as to how far the State should make its voice heard in the evaluation of the material of instruction is becoming at the present moment increasingly important. If the State administration is the organ of a democratic society, then it may be said that society acquiesces in the State's estimate of values. Moreover, there is little doubt that during years of national crisis the State may modify curricula without the consent of the nation. Whether this should be allowed in normal times, and to what extent it should be permitted, is a question so far unanswered. Attempts, open or hidden, have been made by various States to militarize the peoples by means of school training. Systematic attempts have also been made, by means of emphasizing or enlarging certain parts of school curricula, to divert pupils from afterwards pursuing certain callings. An emphasis, for example, upon practical science has had the effect of increasing the numbers of those entering technical workshops; upon language studies, of increasing the numbers in clerical occupations. In examining the right of the State to do this, two points should be remembered. First, that every function of the State should be exercised for the good of the individual members; the ultimate aim of national life is to make it possible for each individual to realize his highest possibilities. Second, that the power of the State to do this depends largely upon a systematic procedure, which necessarily often cuts across an individual's capacities and possibilities of

self-realization. So long as the State is self-governed, this danger cannot be great; but a despotism may be able, by means of the education it imposes, to make willing slaves of the people. W. G. S.

**VASOMOTOR PROCESSES.**—The muscular fibres of the walls of the blood vessels are beyond the control of the will, and are controlled by the nervous system. The nerves are called "vasomotor," and are governed from the "vasomotor centre," situated in the medulla oblongata. Nervous energy keeps the muscular walls in a moderate state of contraction or tone; excess of stimulus contracts the walls and diminishes the flow of blood; deficiency of stimulus has the opposite effect. Blushing and pallor are among the effects of irregularity of stimulus.

**VATICAN LIBRARY, THE.**—Of all the libraries of Europe, or even of the world, the most important, and in some of its divisions at least, the most ornate, is that in the palace of the Popes, known as the Vatican Library. This importance it owes, not to the number of its printed books, for in this it is easily surpassed by the principal libraries in such large capitals as London and Paris, but to the number and value of its manuscripts. It is this which causes to be seen within its walls distinguished students of a greater number of nationalities than will be met with in any other of the great European libraries. The present Vatican library is not itself remarkable for antiquity, for it dates only from the fifteenth century. But, as the library of the Popes, it has a pedigree which puts every other European library into the shade. The first papal library dates back to the early days of Christianity, and owes its irreparable destruction to the persecution of Diocletian. The last great persecution, however, had hardly passed away when Pope Damasus (366-385) attached fine porticoes to the Church of St. Lawrence which bears his name, in order to found a home for the library of the See. This second library of the Popes, which, during its 900 years of existence, had its quarters in different parts of Rome, was more or less completely destroyed in the tumults of the thirteenth century. When these disturbances induced the papacy to withdraw to Avignon, a fourth papal library was there founded. On the return of the Popes to Rome after their seventy years of "captivity" on the banks of the Rhone, the present Vatican library, which inherited some of its predecessor's books, was duly inaugurated by Martin V. If these different papal libraries were not closely linked together by the books which passed from one to the other, they may be regarded as connected by the long line of the librarians who have presided over them, from Gregory (afterwards Pope Gregory II, 715-731) in the eighth century to Cardinal Gasquet of to-day. It is a curious fact that, as the first papal librarian whose name is known to us became a Pope, so the first cardinal librarian of the Vatican library, Marcello Cervini (1548), afterwards became Pope Marcellus II.

**The Foundation of the Modern Library.** Little was done for the Vatican library by Martin V; and, though under his successor, Eugenius IV, the number of books in it rose to 340, including some Latin classical authors, the great humanist, Pope Nicholas V (1447-1455), must be regarded as its real founder. He sent agents to the countries of Europe and the East to collect manuscripts.



*The University of Valladolid*



He saved remnants from the libraries of Constantinople both after and before its capture by the Turks, and he caused Greek works to be translated into Latin. Exactly how many manuscripts he collected is not known. That he added 5,000 to the library, as is commonly stated, is no doubt untrue; but he appears certainly to have enriched it with some 800 Latin manuscripts, and at his death the library boasted 1,140 volumes, including 331 in Greek. While, then, to Nicholas V belongs the credit of having first made the Vatican Library famous for its books, "for the use of the court of Rome and of the learned of every land," Sixtus IV (1471-1484) deserves praise for having provided them with a beautiful home. Following the ancient examples of Popes Agapitus (535-6), and Zachary (741-752), who we are told adorned the papal library of their day with portrait busts and paintings, Sixtus IV removed the books of Nicholas V from comparative obscurity and placed them in a distinguished position. His library was in turn replaced by the present building, the work of the immortal builder, Sixtus V (1585-90). The change was necessitated by the large number of books added by Sixtus IV himself, and still more by the most famous of the humanistic Popes, Leo X (1513-1522). Later on, as whole libraries (that of Heidelberg in 1622, of the Dukes of Urbino in 1658, and of Queen Christina of Sweden in 1690) were incorporated, it became imperative to increase the accommodation provided by Sixtus V. Fresh buildings were accordingly erected by Paul V (1605-21), Alexander VIII (1689-91), and Clement XII (1730-40). It was especially the work of another Clement, the eleventh (1700-21), that compelled Clement XII to build. His predecessor of the same name procured a great many Syriac, Arabic and Coptic manuscripts for the Vatican, and is deservedly reckoned as the founder of its Oriental department.

**The Work of Leo XIII.** Passing over the work done for it in comparatively recent times by Pius VI (1775-1800), and Pius VII (1800-23), we may say that one of its greatest benefactors in any age was Leo XIII (1878-1903). Under him more than ever has the Vatican library become "the cornerstone of modern scholarship" and "the laboratory of modern thought." He threw open all sections of it to the students of the world, and much improved the accommodation previously at the disposal of readers, and greatly increased both its treasures and the space hitherto allotted to them. Readers have now at the Vatican every advantage afforded them by the best equipped libraries of the world, and they have access to over 900 fresh manuscripts, some formerly belonging to the papal library of Avignon, which Leo's enlightened generosity added to a collection that now boasts some 50,000 manuscripts, and about 350,000 printed books. To this magnificent store of manuscripts there are 187 volumes of catalogues and inventories.

In connection with the Vatican library, are various departments which considerably extend its efficiency or usefulness. Before the invention of printing, *scriptores* were employed by the library authorities in copying manuscripts. The Vatican has now its printing-press, whence are issued works of the first importance, especially for persons unable to visit the library itself. There is also a department for the renovation or preservation of manuscripts, which has

proved itself one of the best of such agencies anywhere. H. MANN.

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**VEGIUS, MAPIAEUS or MAFFEO-VEGIO** (1406-1458).—One of the most distinguished Latin poets of the fifteenth century. He was born at Lodi, studied at Milan, and at an early age composed excellent Latin verses. He also studied law and became professor of jurisprudence at Pavia. He was afterwards a secretary to the Pope at Rome, and canon of St. Peter's Church. His writings include *De educatione liberorum* (1491) in six volumes, a complete treatise on education and full of excellent advice. His best known classical work is a supplement to the twelve books of the *Aeneid*, which was published many times as an addition to Virgil's books. He also wrote religious treatises, and many Latin poems on subjects drawn from classical sources.

#### VENEZUELA, EDUCATIONAL SYSTEMS OF.—

Teaching in Venezuela may be either public (*i.e.* provided by the Federal Union, State or Municipality) or private (*i.e.* undertaken by any person in full possession of his civil rights). Five branches of teaching are recognized, namely: (1) Primary, divided into elementary and higher; (2) Secondary, complementary to primary and preparing for the next stage; (3) Normal, divided into primary and higher; (4) Superior, including medical and political sciences, divinity, mathematics, natural science, philosophy and letters; (5) Special. Masters and professors in all public institutions are appointed by competition and must possess certain official diplomas. Dismissal is only possible in cases of proved incompetence, negligence or immorality.

**Diplomas and Certificates.** The State recognizes two kinds of diploma, the academic (bachelor and doctor) and professional (attorney, apothecary, architect, agricultural engineer, civil engineer, dentist, lawyer, master in primary instruction, midwife, mining engineer, physician and surgeon, professors in secondary, normal and superior education, surveyor and veterinary surgeon). Candidates for a diploma must hold official certificates in certain prescribed subjects, which differ, of course, according to the nature of the diploma. A final general examination is also required. Certificates are awarded on the result of examinations which usually consist of three parts; written, oral and practical. Three certificates are issued to what may be termed school children, and the regulations for these are special. There are: (1) the

certificate of Elementary Primary Instruction, which guarantees that a child has complied with the laws of compulsory attendance, and qualifies for entrance into a school of the next grade. (2) The certificate of Higher Primary Instruction is of the same nature and qualifies for entrance into a secondary or normal school. (3) The certificate of Secondary Instruction is necessary to those who wish to take up one of the "superior" studies. Public education, generally, is under the control of the Ministry of Public Instruction, except in the cases of prison and charity schools, which are under the Ministry for Home Affairs; studies in connection with consular or diplomatic work, which are under the Ministry for Foreign Affairs; and military and naval schools, which are responsible to the Ministry of War. The granting of diplomas and certificates is under the control of the "National Council of Public Instruction," whose president is the minister of the department. Inspection is carried out by "National Commissions" which may delegate their power to boards, technical inspectors, and superintendents. The Government has the right to inspect all public institutions at its own discretion, and all private ones in dealing with matters of public order or hygiene.

**Public Primary Instruction.** There are two types of primary schools: the Ordinary, divided into elementary and higher; and the Special, which include nursery and kindergarten schools, schools for adults, and schools for the blind, for the deaf and dumb, and for the mentally deficient. Ordinary primary education is compulsory and is arranged for children between the ages of 7 and 14, those below seven being catered for in nursery schools and kindergartens, and those over 14 in schools for adults. It is necessary that each primary school should have: (a) large, well ventilated and lighted class-rooms, with an area of at least one square metre for each pupil; (b) adequate corridors for gymnastic exercises; (c) playgrounds. These are the most important provisions, but there are many other Public Health regulations which school builders must recognize.

Classes are arranged in six successive grades, the first four corresponding to the elementary, and the fifth and sixth to the higher stage. A pupil is usually in each grade for a year, but this does not prevent pupils of exceptional ability from being promoted according to merit. The teaching must be direct (*i.e.* from the master personally to the scholar), simultaneous (*i.e.* all pupils of the same grade should be taught together), and practical and inductive (*i.e.* it should begin with concrete observations and lead to generalizations). Regular visits to museums, historic spots, farms, factories and similar places are encouraged, the teacher on these occasions giving necessary explanations and developing the child's power of observation. A teacher must be between 18 and 60 years of age, and is entitled to a pension after 25 years service.

**Secondary Instruction.** This is provided in lyceums and colleges, in which the course may be general, aiming to turn out a man of general culture, or special. The special course may be either in philosophy and letters, preparing for admission to a superior course; in medical and natural science, qualifying for a further course in medicine and surgery, botany and zoology, or agriculture, or in the physical sciences that

form part of the full training of a civil engineer, a mining engineer, or an architect. Lyceums usually provide both general and special courses, but most "colleges" have only the general course. Teaching is both theoretical and practical, and school visits and excursions are arranged by the professoriates.

**Normal Instruction** is provided for candidates who wish to enter the teaching profession, and, in separate schools, they may be prepared for work either of a primary or of a secondary nature. For entrance to a primary normal school it is necessary to be between the ages of 15 and 25 and to possess the certificate of Higher Primary Instruction. The course lasts three years and covers both the theory and practice of teaching. The course in a higher normal school lasts two years, and for admission the certificate of Secondary Instruction or the degree of Bachelor is necessary.

**Superior Instruction** is provided in universities, superior schools, scientific and literary institutions, hospitals and laboratories. The superior schools give courses ending in a diploma in: (a) philosophy and letters; (b) mathematics, physical and biological science; (c) medicine and surgery, pharmacy, dentistry and veterinary work; (d) political science or law (leading to the professions of the lawyer and the attorney) and (e) divinity. The qualification for admission to any of these courses is the corresponding certificate of proficiency from a secondary school. University work is extended and popularized by many institutions, among which are the Venezuelan Academy of the Spanish Language, the National Academy of History, the National Academy of Medicine, the Academy of Political and Social Sciences, the College of Engineers, the National Library, the Museum of Natural History and Archaeology, the Museum of Fine Arts, the Educational Museum, and the Bolívar Museum, and the Observatory, which deals with matters concerning astronomy and meteorology.

**Special Education.** In Venezuela there are three schools of commerce, one school of music and elocution, and one school of sculpture. Of art schools there are two for men and one for women, and in addition there is one nursing school and one lyceum, each of which takes only girls.

L. G. C. I.

**VENTILATION OF SCHOOLS.**—(See BUILDINGS, SCHOOL.)

**VERBALISM.** This, contrasted with realism, is a study of words as opposed to the study of the things of the world. The verbalist devotes his attention to language, literature, grammar and style, and the education of the schools from early Christian times down to that of the grammar schools which followed the Reformation was chiefly based on verbalism. Even physical sciences were studied from books rather than from Nature. The authority of ancient authors was put in the way of independent research; Pliny was quoted on natural history, Galen on medicine, Ptolemy on astronomy. Occasional thinkers and would-be reformers, such as Roger Bacon (*q.v.*) and Albertus Magnus (*q.v.*), advocated the study of things themselves, but it was not till after the Renaissance that close attention was given to natural phenomena.

**VERGERIO, PIERRE PAUL** (1349-1419).—One of the most distinguished scholars of his time, was born at Cape d'Istria of an illustrious family,

and made his first studies at Padua, where he became renowned for eloquence and philosophy. He afterwards studied at Florence under Zabarella, supporting himself, though still young, by teaching dialectic. Zabarella took him to Rome, and for a time he was employed there in teaching, returning to Padua in 1393 and holding the chair of philosophy for seven years with much success. During this time he profited by a visit to Florence to learn the elements of Greek from the famous scholar Emmanuël Chrysoloras. He took up the study of Greek with great earnestness as well as that of law, and in 1404 became doctor of law and philosophy at Padua. He undertook the education of the children of a Paduan noble, and for them wrote a little treatise *De ingenuis moribus*, which was afterwards printed many times in Italy during the fifteenth and sixteenth centuries. In spite of patronage, he remained poor and suffered many privations until he became attached to the court of the Emperor Sigismund, whom he accompanied to Hungary, where he died about 1419. Besides the book above named, Vergerio wrote a life of Petrarch, lives of the princes of Carrara, a life of Alexander, translations from Plato, and a Latin comedy.

**VERNACULAR IN EDUCATION. THE.**—When John Brinsley (1612), in his *Ludus Literarius*, deals with the teaching of Latin, and the class teaching of parsing the separate words, he insists that the work be done "only in pure Latin," only exempting the "first form" or "the second at most." It is clear that the ideal was that of Latin as the vehicle of instruction as far as possible. John Palsgrave, in the dedication of his *Acolastus* (1540) to King Henry VIII, gives an explanation of Latin-speaking in the school-work the fact that masters often know less English than Latin. As students they had gone to the universities "with the rude language" of their native places, were unpractised in "pure English" in the universities since Latin only was spoken there, and went back, "unable to open the diversities of phrases between our tongue and the Latin . . . (the very chief thing that the schoolmaster should travail in)." With the Renaissance current of classical studies, the place of Latin was strongly entrenched, and might have prevailed in England, had it not been for the development of a national literature in the sixteenth and seventeenth centuries.

Substantially, in the Elizabethan era, educated men were bi-lingual (see LATIN-SPEAKING). Hence Sir Francis Bacon's books were published in both Latin and in English. Hobbes wrote in both Latin and English. On the other hand, scientists like Dr. Wm. Gilbert, *de Magnete* (1600), Dr. William Harvey, *de Motu Sanguinis* (1628), and Sir Isaac Newton (1687), all published their results in Latin. The great additions to knowledge communicated in Latin tended to filter through to the schools in small Latin text-books. English became, only in the eighteenth century, the language in which English scientists wrote.

**Early Use of the Vernacular.** Latin as the language of learning and science continued longer than the use of Latin as the instrument for teaching purposes. Apparently in earlier English history (*i.e.* in the Anglo-Saxon period), the vernacular was used in instruction, of set purpose, by Aelfric, in a Latin grammar translated from *Priscian* for the implanting of Latin and English in the

minds of "ignorant little boys" (c. 995); and his interesting *Colloquia*, though intended for teaching Latin-speaking, accomplished this aim by using the vernacular for comparison. When the Normans settled in England the problem was complicated. Higden in his *Polychronicon*, A.D. 1327, says that children had been required to "leave" their own language, and construe in French, "and so they have since the Normans came first in England." But, when John of Trevisa edited Higden's book in 1485, he says that the use of English had now replaced that of French, and the change is ascribed to John Cornwall, and Richard Penriche. It deserves emphasis that some of the *earliest* Renaissance text-books of Latin grammar in England were printed in English (*e.g.* Holt's *Milk for Children*, 1497; Colet's *Aeditio*, 1527). This would scarcely have been done if it were not a common usage to teach in English. Still the multiplication of Latin grammars written only in Latin in the sixteenth and seventeenth centuries is an indication that the aim, at least of English grammar school education, was towards the use predominantly of Latin as the instrument of instruction in all subjects, including the study of Latin itself.

**The Use of English for Literary and Educational Purposes.** The use of English, for literary and educational purposes requires special notice. Anglo-Saxon literature, Layamon's *Brut*, the *Ormulum*, the lay of Havelock the Dane, the works of Chaucer and Gower, the miracle plays of Chester, Wakefield, Coventry, etc., and the varied literature of Lydgate and Wicliff show that the vernacular literature more and more secured larger bodies of readers. Still, we must remember that Sir Thomas Elyot's *Boke named the Governour* (1531), is the first philosophical-educational book written in English. The first educational work advocating the use of English is on the subject of archery (*q.v.*), viz., Roger Ascham's *Toxophilus*. The patriotic commendation of the art of shooting with the long bow is founded on its value to scholars in excluding ignoble pastimes in peace, and the strength it gives a nation in war. Ascham apologises for writing in English, but pleads that English might be written with as much care and effort as Latin, if writers would dare to speak as the common people do, and think as wise men do.

In 1553 appeared the first important *Art of Rhetoric* written in English, by Sir Thomas Wilson. Robert Recorde (*q.v.*) wrote the first book in English on arithmetic (c. 1540), on geometry 1551, on astronomy 1556 (if we pass by Chaucer's *Astrolabe*), and on algebra 1557. John Peele wrote the first book in English on book-keeping in 1569. Henry Billingsley and the well-known John Dee produced the first translation into English of Euclid's *Elements* in 1570. Music had its English text-book earlier, *The Short Introduction to Sternhold* and Hopkins's edition of the Book of Psalms in 1549. William Cunningham wrote on geography in English in 1559. Thomas Blundeville wrote, in 1570, the first book in English on the *Method of Reading Histories*. The earliest English grammars were in Latin. The first *Method to teach English* appears to be that of John Hart, 1570.

The first general appeal for the use of the vernacular for educational purposes appears to be that of J. L. Vives in the *De Tradendis Disciplinis*, 1531. But he was followed by an Englishman only in the direct demand for teaching of English in



English (viz., by Richard Mulcaster). Fifty years later Mulcaster, in the *Positions*, 1581, advocated the teaching of English before that of Latin, and in 1582, wrote the *Elementarie*, which contains the finest appeal of the sixteenth century for the educational use and study of English.

**Use of the Vernacular Abroad.** As early as 1492, Antonio de Lebrija had issued a Spanish grammar. In 1525 Peter Bembo in his *Della Volgar Lingua* had pleaded for the use of Italian instead of Latin by Italian literary men. In 1530 was published the remarkably comprehensive treatise on French grammar by John Palsgrave, an Englishman, *L'Eclaircissement de la Langue française*, issued from London. Jean Bodin and Ramus were the educational pioneers in advocating the vernacular in France, but the effective use in schools was reserved till the time of the Port-Royalists. The French Academy was established in 1635. Rudolph Agricola and Wimpfeling were pioneer German humanists in recognizing the value of the vernacular. The first German grammar was by Valentin Ickelsamer in 1522. Institutionally, in England, Latin was the medium of instruction in universities, colleges and schools till the middle of the seventeenth century, though, in the proposed academy of Sir Humphrey Gilbert (1572), English was to be the language for exercises and orations; and, in Sir Thomas Gresham's College (1579), from the first, lectures were to be delivered both in Latin and in English. F. W.

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**VERONESE.**—(See GUARINO.)

**VERSIFICATION (LATIN AND GREEK), THE TEACHING OF.**—Erasmus (*q.v.*) and George Buchanan wrote Latin verses because in their day they were a recognized international vehicle of poetic and witty expression. Even to-day, in middle and late life, scholars resort to Greek and Latin versification as an attractive solace: with Tennyson, they find that—

"A use in measured language lies;  
 The sad mechanic exercise,  
 Like dull narcotics, numbing pain."

But the practice in schools rests on other foundations.

**When Studied.** In dealing with schools we may at once set aside all pupils who enter on a grammar-school course of Latin between the ages of 12 and 16. The pupil who puts his hand to Latin and Greek versification begins the subject at the age of 15 and probably continues it for three or four years at school, and for two years more at the university. The comparative lateness of the start is a modernism, the result of a wholesome revolution in method. Thirty or forty years ago, boys who knew very little Latin were prematurely set to the subject, with disastrous results. In recent years it has been found quite feasible for boys to start at 15, or even later, and reach the old standard at 19.

**Why Studied.** The aim is, primarily, not the making of Greek and Latin poets. Dr. Abbott

makes a very moderate claim, the imparting of "some degree of literary taste and judgment"; but the Hon. E. Lyttelton quite rightly concludes that Latin versification affords a method of instruction "admirably adapted to evoke and strengthen in young minds the faculties of memory, accuracy, sense of rhythm, imagination and proportion, and the power, which most boys are reluctant to use, of sinking below the sound of language to its inner meaning." Such being the aim, let us consider the method of teaching.

**Latin Versification.** Not later than the age of 15, a pupil who has read a book or two of Virgil and a few hundred lines of Ovid, and learned the scansion of the Virgilian hexameter and the Ovidian couplet, and the rules of prosody—in all of which processes the use of the reformed pronunciation of Latin (*q.v.*) is a very great advantage—is started with the elegiac metre. Here all is definite: the rules of the art, if somewhat numerous and bewildering, are well known. *Festina lente* is the motto, and the pupil must be taught patiently to build up from given English various divisions of the line. In the first exercises, for given English, spondaic words have to be supplied for the final foot of the hexameter; then for the final dipody (dactyl and spondee), and so on, bit by bit, through the whole hexameter; and similarly through the whole pentameter. During this process much is learned of words poetic and metrically convenient. This is the first stage. In the second, a few lines of English, translated direct and literally from Latin poetry, are set, and the pupil supplies the Latin words and fits them into their places in the puzzle. After a good deal of this grounding (which should be largely *vivâ voce*), we come to the third stage—the real struggle—the first attempt to turn English verse into Latin verse. Some very simple but good poem is chosen, with short lines, the direct and simple translation of which will not fill hexameter or pentameter. When the learner is required to turn—

"Now the day is over  
 Night is drawing nigh,"

into a couplet, he is flung somewhat violently back on his own resources: imagination, creative power, and discretion must be brought to bear. Of course, the problem is attacked *vivâ voce* by master and class; and, indeed, in this stage of the work, alertness and resourcefulness can be produced only by constant oral co-operation between teacher and taught. The proportion of *vivâ voce* work may be gradually diminished as times goes on, but, even with pupils of the fourth and fifth years, the occasional working out of a "joint-stock" version is a healthy stimulus. In this case, by appealing to the senses, and answering such questions as, "How do we know the day is over?" "How do we know night is drawing nigh?" we arrive at appropriate expansions, which are also the kind of expression Latin poets would have used, and are metrically suitable. In this way a version, not of a high order perhaps, but sufficient for the present purpose, is hammered out. After a term or two at this exercise, it is possible to reject those pupils who will get no real advantage from further versification. The others reach stage four, by attempting English which gives less scope for expansion, but demands more ingenuity in working all the ideas into the compass of the line or couplet: towards the end of their course, they will not shrink from the close-packed diction of a Shakespeare sonnet.

Stages three and four have this great advantage: to turn an English poem into Latin one must read and study it closely; in fact, fix the attention on a work of art. They also entail the reading and relishing of some thousands of lines of Latin poetry, for the car plays at least as large a part in composition as the conscious application of rules. The learning and recitation in class of long selected passages of Virgil, Ovid, and Horace is a matter of course.

The teaching of Latin elegiacs has been treated at length because it exhibits the basic principles. After some two years, stage five (Latin hexameter verse) is reached. Here we have much that is new. The length of periods, the arrangement of pauses within the period, the use of descriptive and other rhetorical devices, depend upon individual judgment. The first task of the beginner is to study Virgil's use of the various pauses in the line. In his attempt to assimilate these, the pupil half-unconsciously learns much more. Systematized instruction on Virgil's technique can be given under such heads as rhythmical structures, the beginning and the end of the verse in relation to the use of spondee and dactyls, descriptive versification, and so on. The last, or sixth stage is reached when a subject is set, and the pupil writes a copy of free, or original, verses; but *pari passu* with hexameters, copies of Alcaics or Sapphics on the model of Horace are demanded.

**Greek Versification** follows similar lines. At the same time as Latin elegiacs a boy begins Greek tragic iambic verse. In the first or mechanical stage three things must be insisted on—the right placing of spondee, caesuras in the middle of the line, and the avoidance of false final cretics. On the whole this is the easiest form of verse taught. After two years is added occasional practice in a simple form of Greek lyrics, or in elegiacs, or Homeric hexameters.

This is the complete school and university course in Greek and Latin versification, to which probably some three hours a week have been given during a period of five years.

**Text-Books.** Of books on Greek and Latin versification there is an abundance. There are books in several grades which demonstrate the art of versification: books containing collections of versions by experts; and books discussing teaching methods and the psychology of the subject. Among the first may be mentioned books by Pantin, Rouse, Frost, Gepp, Sidgwick, and Winbolt; among the second, *Cambridge Compositions, Nova Anthologia Oxoniensis*, and collections by Shilleto, Munro, and Evans; and among the third, "On the Teaching of Latin Verse Composition," by E. A. Abbott, D.D., in *Lectures on the Practice of Education*, and *Are we to go on with Latin Verses?* by Hon. E. Lyttelton. S. E. W.

**VERTIGO.**—Is the condition in which a person suffers from a sense of loss of control over his equilibrium. The sensations accompanying vertigo are dizziness, giddiness and swimming in the head, and the sufferer experiences a tendency to fall or a feeling that his body is rotating. Mild cases of vertigo occur on landing after a sea journey, when an uncomfortable feeling of oscillation is experienced; and most severe forms render persons quite incapable of maintaining their balance, when they either fall down or must cling to some fixed object for support. The cerebellum is the regulator of muscular movements, and receives

impressions associated with the sense of equilibrium by the auditory nerve from the semicircular canals of the ear. When disease of the cerebellum exists there is usually giddiness, a tendency to move backward, and a staggering, irregular gait. Temporary disturbance of the cerebellum may be caused, especially in elderly persons, by sudden change of posture as in stooping and rising, or by rapid turning round on the axis of the body.

**VESALIUS, ANDRE VESALE.**—Named from the city of Wesel, in the duchy of Cleves, to which his family belonged, was born at Brussels in 1514. He is regarded as the creator of the science of human anatomy. In the middle ages the dissection of a creature "made in the image of God" was considered the worst form of impiety. Mundinus, professor of medicine at Bologna, had offered, in 1315 to 1318, to exhibit dissected human bodies, and to dissect them in public, but dissection was prohibited by the church and not subsequently allowed for many years. Vesalius was educated for the medical profession and took up anatomy with enthusiasm, and in 1543 brought out his great work *De corporis humani fabrica*. Vesalius visited, operated in, and lectured in most of the great centres of learning in Italy, as well as at Paris, Louvain and Basel. He proved that Galen's descriptions were obtained from the dissection of bodies of monkeys and not those of men. Gabriel Fallope was one of his pupils. He died in the island of Zante in 1564, on his way back from a visit to Jerusalem, after he had just been appointed professor of anatomy at Padua.

**VETERINARY SURGEONS, THE ROYAL COLLEGE OF.**—Veterinary science commenced among the Egyptians, and from them the Greeks learnt much about the horse and its diseases. Roman writings on the science were much studied in the Middle Ages, and the first veterinary college in Western Europe was established at Lyons in 1762. In Great Britain, the Odiham Agricultural Society contributed largely to the founding of the Royal Veterinary College in 1791, the first professor being a Frenchman, Vial de St. Bel. In 1844 a Royal Charter was granted constituting the Royal College of Veterinary Surgeons as the governing body of the profession; and in 1881, by the Veterinary Surgeons' Act, the title of Veterinary Surgeon was protected, and the duty of the R.C.V.S., of prescribing the educational curriculum and holding the required examinations, was confirmed.

There are veterinary branches of all Departments of Agriculture, employing many whole-time inspectors; and the Royal Army Veterinary Corps forms an important branch of the British military forces. The Diploma of M.R.C.V.S. is the requisite qualification for all such appointments.

The Royal College of Veterinary Surgeons, 10 Red Lion Square, London, W.C.1, is the body controlling professional etiquette, and its Registrar has the duty of issuing annually a Register of duly-qualified Veterinary Surgeons. All members practising in the British Isles are required to pay an annual fee of £1 ls. The College conducts the examinations of all students at the five affiliated veterinary colleges: London (Camden Town), Edinburgh, Glasgow, Dublin, and Liverpool.

The curriculum extends over four years, the examination syllabus being as follows—

**Examination A. (FIRST YEAR.)**

1. *Anatomy of Domesticated Animals* (Bones, Ligaments, and Joints).

2. *Chemistry and Elementary Physics.*
3. *Biology (Elementary Botany and Zoology).*

**Examination B. (SECOND YEAR.)**

1. *Anatomy of Domesticated Animals.*
2. *Physiology and Histology.*
3. *Stable Management, Principles of Shoeing.*

**Examination C. (THIRD YEAR.)**

1. *Pathology, Bacteriology, Protozoology.*
2. *Materia Medica and Toxicology.*
3. *Veterinary Hygiene and Dietetics.*

**Examination D. (FOURTH YEAR.)**

1. *Principles and Practice of Veterinary Medicine, and Meat Inspection.*
2. *Principles and Practice of Veterinary Surgery and Obstetrics.*

The College year begins in October, and the session lasts for thirty weeks, daily attendance being required.

Every candidate for the diploma of the R.C.V.S. must pass a Preliminary Examination. Most of the University Local and Matriculation examinations are accepted for this purpose.

Medals and prizes are given by the R.C.V.S., by the various colleges, and by the Royal Agricultural Society of England for merit in the examinations.

Two years after graduation, members are eligible to sit for the Diploma of Fellow (F.R.C.V.S.), for which a thesis must be submitted.

The Diploma in Veterinary State Medicine (D.V.S.M.) is also open to graduates who have attended special courses in Epizootiology, Bacteriology, Protozoology, Hygiene, Sanitary Science and Administration (including Meat and Dairy Inspection).

**VICO, GIOVANNI BATTISTA (1668-1743).—**

A celebrated Italian philosopher, obliged to earn a livelihood at 15 years of age, became the teacher of the children of the Marquis della Rocca. For nine years he lived in a quiet village studying eagerly the books in the library of the neighbouring monastery, including Plato, Tacitus, Bacon and Descartes. In 1697 he became professor of rhetoric at Naples. He was an obsequious and servile parasite of wealthy and powerful men, and wrote many panegyrics and flattering addresses, but died in great poverty. Under the ambitious, though suitable, title of *Science nouvelle*, Vico created the philosophy of history. He was not appreciated in his own day, but after the French Revolution his work became popular among philosophers and historians. It was translated into German and French, and ranked with the works of Grotius and Descartes. To solve the problem of the connection between history and philosophy and between authority and reason he wrote *Droit universel*, in which he distinguishes between physical and metaphysical right. Physical right was Roman right as it existed in history dictated by power; philosophical right came from reason and was the law of liberty deduced from a consideration of human nature. Vico argued that there existed a harmony between authority and reason, and out of a primitive reign of physical force there gradually developed the rule of reason. In support of his theory he traced the histories of all the great races of ancient times and found the same uniform development.

**VICTORIA AND ALBERT MUSEUM.**—(See SOUTH KENSINGTON MUSEUM.)

**VICTORIA COLLEGE, JERSEY.**—(See JERSEY EDUCATIONAL SYSTEM IN.)

**VICTORIA COLLEGE, WELLINGTON (N.Z.).**—(See NEW ZEALAND, EDUCATION IN.)

**VICTORIA, EDUCATION IN.**—The Denominational and National Boards in existence at the separation from New South Wales in 1851 remained in control until 1862, when the Common Schools Act appointed a Board of Education consisting of five laymen, required that four hours daily should be given to secular instruction, and abolished all religious tests. By the Act of 1872, the Department of Education was established under a Minister responsible to Parliament, and education was made free, secular, and compulsory. The Boards of Advice for each school were, however, authorized to permit denominational religious instruction out of school hours. Until 1901, when payment by results was abolished, the salary of a teacher was in part fixed, and in part depended upon the percentage of marks gained in the annual examination. In the same year a permanent Director of Education was appointed. By the Act of 1905 compulsory attendance was fixed from 6 to 14, absence being allowed on two half-days a week, though in 1910 this was amended, and attendance is now required, unless for reasonable excuse, every day the school is open. The latter Act provided for the establishment of a comprehensive system leading from the elementary schools to the university on the one hand, and to the technical colleges on the other—the higher elementary schools, district high schools, and high schools being intermediary to the former, and the junior technical schools and evening schools to the latter.

A Council of Public Education, consisting of twenty representatives of the educational and industrial interests of the State, was appointed to report annually to Parliament. The Boards of Advice were replaced by School Committees, consisting of not more than seven persons nominated by the parents of children attending the school, and entrusted with general responsibility for the care of grounds and buildings. The curriculum of the elementary schools has also been revised and rearranged, and, in place of the six standards, pupils are now classified into eight grades, beginning their school career at 6 years of age and completing this stage of it at 14. A qualifying examination is held at the conclusion of the course in Grade VI, in order to provide for entrance upon secondary education when the pupil is at the age of 12, and all who pass are entitled to proceed to a higher elementary, high, or junior technical school. Hand-work is fairly developed throughout the State; there are sixty-two manual training centres with accommodation for 10,700 boys, where the Sloyd system is taught, and sixty-seven cookery centres with accommodation for 6,700 girls. A system of medical inspection has been initiated, four full-time inspectors having been appointed to "investigate the hygienic condition of school premises and the physical and mental condition of the pupils, and to give instruction to teachers." Since the number of children is about 220,000, it is obvious that their hands are full. Two school nurses have lately been added to the staff for Melbourne and district to supplement the work of the medical officers. For some twenty years past, the Education Department

has provided reading matter suitable for the various grades of the primary schools through the medium of its publication *The School Paper*, now published monthly and with a circulation of about 200,000. Another official publication, *The Education Gazette and Teachers' Aid*, has been used for the purpose of making known to teachers all official announcements, and providing them with information that will stimulate interest and help to keep them in touch with recent educational developments.

**Higher State Schools.** The first State secondary schools were established by the Act of 1905; these were the day continuation schools (now known as the high schools) of Melbourne, Ballarat, and Bendigo, their primary object being to provide suitable training for those who wished to enter the teaching service. The Act of 1910 provided other types. Agricultural high schools were founded to give a rural bias to secondary education; but, though some of these, of which there are now ten, are very successful from the point of view of a general education, it cannot be said that from the agricultural standpoint much is effected, since a very large proportion of the pupils enter the Civil Service or professional or commercial occupations. Nineteen higher elementary schools, providing a four years' course for pupils from 12 to 16 years, and eighteen district high schools, with a six years' course for pupils from 12 to 18 years, have also been established. A beginning has been made with a scheme for arranging higher elementary classes for pupils from 12 to 14 years old at centrally situated elementary schools, to which all pupils above the sixth grade not proceeding to the higher schools may be drafted from the other schools of the neighbourhood, and where they will spend from one-third to one-half of their time. After the manner of the Scottish supplementary classes, special instruction is provided in them with some bearing on the probable vocational needs of the child. In 1917 there were six such schools. The total attendance at the twenty-eight agricultural and district high schools for 1917 was 5,686, and at the higher elementary schools and higher elementary classes 1,322, and at the central schools 819.

In all secondary schools except the junior technical, the curriculum is general for the first two years; thereafter one of the following courses may be chosen: (1) academic, (2) commercial, (3) domestic, (4) agricultural. To obtain admission to the high schools for their children, parents are required to undertake that they will remain for four years. Education is free up to the age of 14; a fee of £6 is then charged, but fees are freely remitted where circumstances warrant it. In the higher elementary school no fee is charged throughout the four-year course. The inspection of secondary schools has been entrusted to a board of three inspectors with different and special qualifications, who, after a detailed examination into all that pertains to the school, confer with the headmaster and staff, and with the local governing body.

One hundred junior scholarships and fifty junior technical scholarships of the annual value of £10 or £12 may be awarded to pupils proceeding to secondary schools; while forty senior scholarships of the annual value of £40, tenable for four or five years at Melbourne University, and fifty-five senior technical scholarships of the annual value of £30, with free tuition at approved day courses, or of £10 and free tuition at evening courses in technical

schools, are open for competition among junior scholars. A travelling scholarship may be awarded to an inspector or a teacher in the service, the salary being paid in full during the absence of the holder from the State, and if the salary does not exceed £250 an additional allowance is made up to £50.

**Agricultural Education.** Nature study and the principles of horticulture are taught in about 700 elementary schools under the direction of a State supervisor. Each agricultural high school has a farm attached, varying in size from 30 to 80 acres. Besides the experimental farms where a certain amount of instruction is given, there is a secondary agricultural college for boys over 14, with a farm of 2,386 acres, at Longerenong; and a higher agricultural college for youths over 16, with a farm of 5,957 acres, at Dookie. The results from an educational standpoint, however, are not considered to be proportionate to the expense, and a reorganization of secondary and higher agricultural instruction is probable.

**Training of Teachers.** The preliminary training of the teacher is given by the head master of the school to which he is attached, or in a high school, and lasts for two years. He is then appointed as a "junior teacher" to a State school of the third class, and after two or three years' experience he may qualify to enter the training college for a two years' course. Recently the training period for ordinary primary teachers has been reduced to one year, and for rural school teachers to six months. The training college was founded in 1874, and re-organized in 1914 so as to provide special courses for secondary, primary, and infant teachers. During 1914 there were in all 417 students at the "Teachers' College," of whom 80 were in residence, and 152 were taking part of their course at Melbourne University. Students seeking the diploma in education at the University, with a view to becoming teachers in secondary schools, take a three years' course, and receive their training practice at the University High School, established for this purpose in 1910. Three city elementary schools and six rural schools are used for practising purposes in connection with the other departments. An important branch of the work of the college is the conduct of correspondence classes instituted in order to assist country teachers to improve their professional qualifications.

**Private Schools.** Much educational work, both primary and secondary, is done in private schools. In 1917 there were 499 such schools, attended by over 52,000 pupils. All private schools and their teachers are required to be registered by the Registration Board, whose chief function is to see that only qualified teachers are employed and that the hygienic requirements of the State are fulfilled.

**The University of Melbourne.** Founded in 1853, offers degrees in arts, law, science, medicine, surgery, domestic science, civil, mining and mechanical engineering, agriculture, and music. Affiliated with the University, and erected on the same site of 106 acres, are Trinity College (Anglican), Ormond College (Presbyterian), and Queen's College (Wesleyan), where university students reside and receive special tuition.

**Technical Education.** The leading institutions are the Working Men's College, Melbourne, founded in 1887 through the munificence of the Hon. Francis Ormond, and the Ballarat and Bendigo Schools of Mines. These provide instruction of

almost university standard in metallurgy and in the various branches of engineering; there are, in addition, classes in all the leading skilled trades, in applied art, and in commercial subjects. Twenty technical schools of more limited scope are found in the other chief towns. Intermediate between the primary schools and these are the six junior technical schools, which provide a general two years' course of elementary technical instruction for boys between the ages of 13 and 15, who, after entering one of the skilled trades, propose to continue their training in the evening at one of the higher institutions. The future will probably see a wide extension of this type of school. In order to secure an adequate supply of skilled teachers in trade subjects, a five years' course of training has been arranged in the theory and practice of their trade, as well as in the art of teaching, for a number of student teachers selected from those showing most promise in the junior technical schools. The total expenditure on Technical Education for 1917 was £132,943.

**Kindergartens.** In Australia there is no public provision of kindergartens except such as are connected with the training of students at the teachers' colleges. Free kindergartens have, however, been established in several cities by private societies. Victoria has taken the lead in this matter, and in 1914 there were eighteen such institutions, with 1,000 children, and an annual expenditure of about £4,000, of which the Government contributed £1,000. J. H. H.

**VIENNA, UNIVERSITY OF.**—This University was established in 1365 as a Catholic institution by the Papal Bull of Urban V, under the patronage of the reigning Duke of Austria, and was the first of its kind in the duchy. At the beginning its work was limited chiefly to arts and theology, and its progress was slow. In the fifteenth century it increased in numbers and secured a high place among continental universities, attracting many students from surrounding countries. At the commencement of the Reformation period the number of students exceeded those of all other universities in Germany, but the troublous period that followed brought the University to the brink of ruin. The management was in the hands of the Jesuits during the seventeenth and eighteenth centuries, and the institution enjoyed a moderate degree of prosperity. Since 1848 it has been more prosperous, and in 1914 it ranked as the largest in Austria-Hungary, with a roll of 9,000 students, a number which was exceeded by only one German university, that of Berlin (*q.v.*). The medical faculty of Vienna enjoys a very high reputation throughout Europe and in America. The University was known as the Imperial Royal University, and besides its own library of nearly a million volumes, founded in 1775, has also the Imperial Royal Library of even larger extent, which contains vast numbers of maps, engravings and manuscripts. Associated with the University are schools of technology, agriculture, commerce, art and veterinary medicine. In common with other universities of Austria, the University of Vienna is a State institution supported by the Government and directly subject to the Austrian Minister of Education. The Degree of Doctor is conferred in the faculties of philosophy (including arts and science) law, medicine and theology. Since 1878 women have been allowed in particular cases to register

themselves as students and to attend courses as hearers. In 1897 native Austrian women over 18 years of age were first admitted to philosophical lectures, and have since been able to obtain diplomas in medicine.

**VIÈTE, FRANÇOIS** (1540-1603).—Sometimes called Viette, a celebrated French mathematician, who was so devoted to his studies that he sometimes passed days without rising from the chair in which he sat and studied. The period of his work coincides with the introduction of algebra from Italy and with the discoveries of Cardan, Copernicus, Napier and Galileo. His discoveries were connected with mathematical analysis, of which he is considered one of the founders. He extended algebraical calculus to known quantities, discovered nearly all the transformations of equations, and established most of the principles connected with the roots of equations, and the solution of equations of the third and fourth degrees.

**VILLA DEI, ALEXANDER A.**—(See *ANGLO-NORMAN IN ENGLAND, THE USE OF.*)

**VILLAGE LIFE, TRAINING FOR.**—In these days, when men are turning anew to the land, it is well to realize the advantage which, in many respects, country life offers over town life. For the "simple life" there is an increasing demand among workers of all classes. There is urgent need for skilled organization, so that local talent may be given proper scope.

It is not within our aim to deal with rural housing, expert agriculture, wages and other grave problems. As regards practical training for the land, much may be learned from the system now in vogue in Ireland, which has caused something of a revolution under the Department of Agriculture and Technical Instruction. (See Sir Horace Plunket's *Ireland in the New Century.*)

The subject of Playtime and Recreation has been too long neglected in these islands. Its importance can scarcely be over-estimated, because here lies the secret of developing a fuller and happier life in the country, counteracting the attractions which draw the young population into towns. The desire for excitement is natural enough, but it is possible to satisfy it in healthy and vigorous fashion in the country. Any complete scheme of recreation must combine the physical, the intellectual, the aesthetic and the creative, all of which support and interact upon one another. Country life offers a wealth of material for such a scheme.

Any work of this kind must be corporate in character, such as we find already displayed in local flower shows and craft exhibitions. Football, cricket and tennis clubs might be formed with advantage in the larger villages. Much would be gained if the mass of men and boys in colliery villages, who spend their Saturdays watching a match in the excitement caused by betting on the favourite team, were themselves on the field, taking part in a hard and strenuous game. Leisure time in the country is too often spent in leaning against a wall and doing nothing. Far greater pleasure and profit is derived from doing things oneself than from buying entertainment ready-made. It is essential that, at first, there should be willingness to spend some little material and money on instruction. In Kent, villagers are known to pay sixpence a lesson for dancing classes throughout

the winter. It has been found that the price of a billiard table, bought for a village club, could be repaid by means of penny games in a few months. An amount of excellent voluntary work is being done, but for some subjects there are openings for professional organizers and instructors. The demand is rapidly increasing, and it is worth the while of those who are making definite plans for the "back to the land" movement, to remember that financial aid from the county councils and from the Government may be expected whenever, and to such an extent as, the general financial situation will permit. People are willing to pay for what they really like, everywhere.

**The Employment of Leisure.** Folk-dancing, when organized on the right lines, provides exactly what is needed by the rural population. It is less intimate than modern dancing; class-divisions disappear, and people quite differently nurtured find, to their delight, how much they have in common. England is particularly fortunate in her store of traditional dances. The name "Merrie England" takes us back to a time when country dances were to be seen on every village green, and were of such variety and quality that they were adopted in all the courts of Europe. The reason why England has so long forgone her leading place in music is an interesting study. But the widespread revival of folk-songs which has followed their timely rescue from oblivion proves that the heritage is not lost. Young people of all classes are falling under the spell of rounds, squares and longways dances for four, eight or "as many as will," which Playford describes in the *English Dancing Master*. It was a lucky day for England when Mr. Cecil Sharp lighted upon the first edition of 1650 in the British Museum. These country dances are the very embodiment of happy corporate life, and in their gay spontaneity form an admirable training in gentle manners between boys and girls. They can be supplemented by sword and Morris dances for the more stalwart; these dances are spectacular rather than social, being danced by one sex only. A knowledge of the evolution of the folk dance in various countries, and of its relation to folk-drama, adds greatly to the interest. In Gloucester farm-labourers will bicycle for miles after a hard day's work to attend weekly dance meetings that are held in a garden throughout the summer months. Dance festivals are easily organized, and form an admirable means of bringing the villages into contact with one another. The English Folk Dance Society, with its local branches, provides teachers, classes, vacation schools, tests and certificates of efficiency, and information can be obtained from the Secretary, 7 Sicilian House, Sicilian Avenue, London, W.C.1. (See FOLK DANCING, THE TEACHING OF.)

Folk-songs will lead on to part-songs, gleees and cantatas. Every song group should make a point of meeting other groups and attending festivals where they will have a chance of hearing their own songs sung by better choirs, and of profiting by the remarks of the adjudicator. The same thing is true of instrumental music. The simple drum and fife band will develop with astonishing rapidity into a creditable band useful in festivals of all kinds. In the parish church of Glastonbury, cornets, violins and violoncellos have recently taken their place in festival services. We know of an excellent village band led by the fishmonger, practising every week in an old coach-house,

which has arrived, on its own initiative, at giving music from Tchaikowsky. It is a pity that more folk-dance tunes are not arranged for small bands and published cheaply.

**Special Technical Training.** As regards technical training apart from the usual games and crafts, boys should be taught chair-mending, and cobbling, and simple carpentry, while the girls learn cooking, sewing and embroidery. The Boy Scout movement needs no description. Similar training for girls is supplied by the Girl Guides and the Camp Fire Girls, a movement having remarkable characteristics of its own and worked out in connection with local folklore. Our country children need the lessons of the camp no less than children from the towns. During the winter months the need will be felt for liberal and well-chosen libraries. In connection with the latter a reading-room and a folklore society should be started, to which the older members will be found able to bring in much unexpected material. The Pilgrims' Club, Glastonbury, became the centre of keen debates. Nature study should be carried out chiefly in the field, in connection with a photographic club.

The work of organizing Village Recreation, especially in its initial stages, must be largely voluntary, and the scope for personal initiative is enormous. But every village should feel eager to engage, even for a short time, the skilled services of a trained organizer to lay the foundations on broad, not to say traditional, lines.

**The Village Drama Centre.** Finally, all that we have said applies in a special way to the establishment of a village Drama Centre, even in the smallest hamlets. The revival lately experienced is a genuine one, and it has the advantage of gathering in its service men, women and children of every age and class. In the Village Drama there can be scarcely one applicant for a part who may not be given his share in a corporate representation, which representation can become quite a notable event in the district. Local legends, handled by an experienced worker, will suggest some of the beautiful ritual dramas of ancient times. The putting together of these dramas is itself a keen enjoyment; and it is a truly interesting discovery to find that a goodly number working at the same tale (in rehearsal or on paper) will sometimes attain to a vivid and refreshing unity which the work of a sole hand could scarcely reach. Such an attempt, undertaken in the evening hours, will reward the experimenter with astonishing results. Among centres becoming known for such work, Keswick, Kelly, Newbury, Tonbridge, Topsham, and Glastonbury may be named. Glastonbury is already building its First People's Orchard Theatre under the Village Festival Association. That such a dramatic centre discovers creative power in most unexpected quarters goes without saying; it leads to one of the keenest of human joys, that of *corporate creation*, which we are too much inclined to think of as the peculiar possession of the Middle Ages. A. M. E.

**VINCENT OF BEAUVAIS.** (In Latin, Vincentius Bellovacensis).—Was a Dominican scholar of the thirteenth century, who is regarded as the precursor of the encyclopaedists, at a period when the name was unknown. Very little is known of his life, but he is supposed to have died about 1260. He was in high favour at the court of St. Louis on account of his talents. His fame rests on one work

undertaken at the request of St. Louis and containing a *resumé* of the principles of all the sciences then learnt in the universities and theological schools. Materials were collected by copyists in all parts, and Vincent arranged his materials methodically in the *Miroir général, ou Bibliothèque de l'univers*, in four parts: natural, moral, scientific and historical.

**VIOLIN, THE TEACHING OF THE.**—The violin is a very difficult instrument and the first year of study gives little joy of mastery. The first principles are absolutely vital, and unless they are mastered progress is hampered and but a limited development is possible. They are: A good standing position, erect, well balanced, firm yet free. Correct holding of the violin and the bow. Correct position and carriage of the left hand, the fingers well over the strings. Skill in drawing the bow straight, strictly parallel with the bridge, a little nearer to the bridge than to the end of the fingerboard. The ability to draw the bow evenly and with equal pressure over the whole length, and over its two halves, upper and lower. To effect the change of bow smoothly without alteration of pressure, producing a clean, clear sound of musical quality, not a mere noise.

It is an important part of the teacher's duty to show the pupil how to practise properly: unthinking repetition is deadening in its effect, and often leads to mind-wandering and merely mechanical movement without mental effort. The teacher should endeavour to make the pupil as active with his brain as with his fingers.

On commencing a study, a piece, or indeed anything, the greatest care should be exercised not to take up a fault or mistake: it may be played quite slowly but it must be accurate and well controlled.

It is not advantageous to play a study or piece from beginning to end a number of times. It is better to practise the difficult parts each in turn three or four times, consciously directing and controlling every movement, and then to play the whole.

The correct carriage of the left hand and position of the fingers, with economy of finger movement, must be studied. This action is moderate in force and not too high, with quick upspringing. Too high an action takes too long; too hard a blow wastes force. The hammerlike percussion of the fingers should be forceful but inaudible, but better too much force than too little. Above all the stop must be absolutely true, and to perfect the intonation until it is above suspicion is of the utmost importance.

Sevcik's *Triller Vorstudien*, Books I and II, may be used with good effect.

Tone production is largely the work of the bow arm though not entirely so. The development of bowing should proceed from the first simple principle of drawing a straight bow and producing a sweet musical sound. Then master the fundamental strokes in turn: Legato, Détaché (forearm stroke); Martelé (wrist stroke); Connected Staccato, Spiccato, thrown stroke, Sautillé, Hopping Staccato, Flying Staccato, and Ricochet; from these singly and in combination an endless host of things spring and grow. The teacher has a sure guide in Sevcik's *School of Bowing Technique* which is both progressive and thorough.

The formation of a good tone must be ever in

the teacher's mind. At first purity should be his chief aim, then to enlarge its volume, without affecting its quality. Having first learned to produce a good *mezzo-forte* he must on the one side strive for an increase up to *forte*, on the other to decrease to a *piano*. These things are the beginning of variety and gradation of tone and closely related to expression. The pupil should be encouraged to listen attentively to every sound he produces and to note its tone quality.

**The Practice of Scales and Arpeggios.** All great violinists and teachers are unanimous on the importance of scale and arpeggio playing as a means of developing the technique of the left hand, and, when one remembers how much of what may be called the warp and woof of music is made up of scales, sections of scales diatonic and chromatic, and of arpeggios of the common chord and of the dominant and diminished seventh, another important side of it will be recognized. To play a scale well is no easy matter; several factors must work together exactly. The hand must be quick, the percussion of the fingers proceeding only from their joints, the fingers in the lower octaves falling evenly until the four are all on the string together, the fourth finger held a fraction of a second longer than the rest, until the first finger takes its note on the next string. The shifting through the higher octaves must be swift and quiet, the first finger remaining on the string throughout.

In this and in all technical study the following rule holds good: "the slower and more controlled the practice the more rapid the improvement." Teachers will find admirable materials for their purpose in the *Tonleiter Studien und Anleitung zum Studium der Accorde* by Schradieck, and further in the Sevcik *Scale Book*.

**Double Stops and Scales.** Having experienced the difficulty of playing even a single note perfectly in tune, the pupil is often very timid in beginning to play double stops, but quite early some preparation should be made.

The study of scales in thirds, sixths and octaves in all keys, at first within a compass of one octave and beginning, of course, with the easier keys, is important. The practice of double thirds is one of the best means of shaping the left hand.

**The Portamento or Slide.** The pupil, by well controlled practice, having acquired certainty and facility in silent shifting, may now be taught to employ it otherwise than silently, as an embellishment. In this effect the shift becomes a slide and is smooth and clinging, the connecting bridge of sound audible over its whole length from note to note, the pace of the slide being suited to the expression desired.

**The Vibrato.** If the stop be firm and true and all things are in order, the pupil may begin the systematic study of the vibrato. At first he should not use the bow or hold the violin at the shoulder. It should be held under the right arm, the neck across the front of the body until it reaches the left hand. The object of this is that the eye may control the vibratory movement; each finger standing on a true stop should be oscillated in turn, quite mechanically in a minute swing sideways. Only the thumb tip and the tip of the finger stopping the note must touch; in particular the side of the first finger should not touch the neck, the oscillatory swing proceeding from the hand and wrist only, every part of these being loose and free. This should be practised for a few minutes



several times a day, and after a week the violin may be carried to the shoulder and the same movement practised, still without the bow and if possible before a looking glass, so that the eye may continue to control the movement. It is dumb until the bow gives it a voice, but it is important to establish a regular, swinging, sideway movement before using the bow.

Although the vibrato is used very freely in modern playing, the rule of "good taste" should always govern it. It must be studied seriously until all degrees are mastered and under control; only then can it cover the whole ground of expression.

The steady tone must be perfected, the pupil always remembering it is the groundwork, the vibrato adding life and beauty to it; a mere sentimental wavering is not enough; it soon becomes tiresome, being suited only to one phase of expression.

The study of the vibrato will be found to infuse new vitality into the pupil's effort, his violin will begin to sing as never before, and his enthusiasm will carry him on to perfect the vibrato until it will cover the whole range of musical expression.

The tone of the player may be described as unformed until the vibrato is incorporated with the work of the bow.

**The Shake or Trill.** The practice of Sevcik's *Triller Vorstudien* will do much to develop the power and quickness of the fingers; the finger must not be raised too high, but must spring up quite clear of the string or the brilliancy of the shake is clouded. The movements must be made from the finger alone, the hand being quiet. The chief point to be aimed at is the development of the third finger (the most important shake finger) and, if possible, to train it to act independently of the fourth. The conformation of the hand sometimes renders this impossible, and the shake will only attain moderate rapidity and brilliancy; a hand with a free third finger possesses the best possible asset for the development of a fine brilliant shake, but such hands are rare.

The trill finger must always strike a true tone or a semitone, and in trying to develop rapidity of beat the intonation must be carefully watched.

There is a trick shake where movement proceeds from the wrist alone; its use is permitted only on long high notes. It is made by placing the third finger (just clear of the string) at the side of the second, a rapid vibrato from the wrist brings the desired result, without the finger moving at all.

Whether one possesses the right or the wrong kind of hand, the shake must be practised assiduously until the best possible development is attained, and although the fourth finger, owing to its weakness, can never equal the second and the third, it must not be neglected, for it is frequently used. Any violinist who possesses a fine shake may be justly proud of it, for it is one of the most beautiful ornaments.

**Harmonics.** The technical equipment of the pupil is incomplete without a knowledge of harmonics; their study, from the first simple phenomenon of open or natural harmonics to the artificial ones, both single and double, will be full of interest to the student and helpful, too, in perfecting the intonation, for the harmonic will not sound unless it is touched absolutely in the middle.

The art of harmonic playing was carried to its greatest perfection by Paganini, and his development

of it is shown in his works. Spohr condemns the use of artificial harmonics and calls them "childish unnatural sounds which degrade a noble instrument." On the other hand epoch-making violinists such as Ernst, Laub, Viextemps, Wieniawski, and many other great players used them with extraordinary skill and effect. One must conclude that a knowledge of harmonics is absolutely necessary to the violinist and a part of his technical equipment. The teacher will find in the *Joachim and Moser School*, Part IIA, and in the *David Violin School*, Part II, all the information he needs.

**Course of Study.** The pupil's course of study will generally be divided under three heads, viz., technics, études and solos. Serious solos and also the lighter form—salon pieces—must not be forgotten. The art of the salon player is rather a thing by itself; always associated with delicate perception, intimate feeling and faultless delivery, it surely has a place in the formation of style.

**The Formation of Musical Taste and Style.** The cultivation of style in the performance of all solos must be assiduously pursued and should begin with the first melody, when the teacher shows some little touch, appropriate, and distinctive, which he will call upon the pupil to imitate and reproduce. The teacher has in this a great responsibility, for his example and guidance lie at the root of the matter: the pupil is led from one piece to another in progressive order until, with the gathered experience, he can, unaided, perform any piece within his technical grasp.

**The Ear and Ear-Training.** A fine ear is a rare thing, and, if happily it is associated with the gift of absolute pitch, a priceless possession to the violin student. However good the ear is, its training must never be overlooked and forgotten, even when it is so far advanced as to distinguish the finer shades and quality of tone.

In conclusion, let me remark that, up to a certain degree of advancement, only a little common sense and application are required to play quite nicely upon the violin if the pupil is under the direction of a good teacher. For those who have a gift and the ambition to excel, closer application and longer hours of study will, of course, be necessary.

It is no longer necessary to go abroad to get first-rate violin lessons, or indeed, lessons on any instrument or branch of music. The curriculum of our great teaching institutions is well arranged in every respect, and their professors are alive to the latest developments of the art of teaching. Many of them are or have been eminent soloists and exponents of their particular subject on the concert platform, and their pupils will compare with those of any school in the world. A. G.

**VISCERAL SENSATIONS.**—(See SENSES AS CONTRIBUTORS OF MATERIAL FOR INTELLECTUAL DEVELOPMENT, THE.)

**VISITATION ORDER, THE.**—(See ROMAN CATHOLIC CHURCH, THE TEACHING ORDERS OF THE.)

**VISITS OF TEACHERS TO OTHER SCHOOLS, VALUE AND IMPORTANCE OF.**—Our conception of the function and position of the teacher has been vitally affected by the gradual growth, since 1902, of a national system of education. We can no longer think of his work as beginning and ending in one type of school. To be effective, that work



must be related to other parts of the national system. Teachers in elementary schools must contemplate the passing of their pupils to secondary schools, technical schools, trade schools, evening schools, or possibly to special schools of different types. The secondary school teacher is in an analogous position. The school, if it is to be a living force, must relate itself closely to other parts of the educational body. The teacher, in a secondary school, for example, at which ex-elementary pupils attend, cannot understand their needs unless he is familiar from personal observation with the discipline and the curriculum under which they have been prepared. Similarly the children may lose valuable time, at the outset of their new career, unless their elementary school teacher was familiar with the conditions of work and discipline into which they are to pass.

The teacher, then, requires to understand, in his pupils' interests, the various types of educational opportunity open to them, but he himself requires the inspiration and enlightenment which comes from well planned visits to other schools. He may observe the teaching of subjects in which he is interested, in a school where they receive special attention from an enthusiastic experimenter. He may study a new type of teaching or discipline, in fact a new ideal of education, in some institution free to experiment on fundamental lines. He may observe in the teaching of special schools psychological phenomena and educational methods which throw important light on the education of the normal child. In any school, he may find a stimulus in the observation of conditions which, by their familiarity or strangeness, stir his powers of self-criticism, and help him to avoid the insidious temptation of regarding his own methods, or school, as having reached finality. In every case, moreover, the presence of an interested visitor brings stimulus, and often a fresh outlook, into the school visited.

The advance of education is, in the last resort, as in the first, dependent on the teacher. The administrator must owe the greatest part of his knowledge to the professional expert, as he depends on him to carry out his schemes. All are agreed that our national system of education is still incoherent, and far from as effective as it might be. Teachers whose horizon is limited to the needs of their own particular type of school are failing in their duty as citizens, for on a body of such teachers only class and sectional education could rest. Teachers, on the other hand, who understand schools other than their own, have the material for thinking nationally. Moreover, to realize one's own immediate sphere of work in its relation to the needs of the whole community is to bring to that work a constant flow of new life and new experience.

W. M.

**VISUALIZATION.**—The investigation of the nature of mental images—visual images in particular—began with the researches of Francis Galton (*q.v.*). And it would be but slight exaggeration to say that it also ended there; for the account of the variety, intensity, and distribution of visual imagery which he published in his *Inquiries into Human Faculty* in 1883 is still the best and fullest we possess. He gives abundant evidence of the fact that, while some people can imagine a scene almost as clearly and vividly as though they were actually looking at it, others have such dim and

vague mental pictures that they even deny that they have any at all.

**Visualization and Verbalization.** To visualize is to see with the mind's eye—to imagine things seen. In considering its educational significance, we should distinguish between the value of the image as a picture of reality and its value as an instrument of thought. To the painter the pure image is important; to the thinker the symbol. No visual image is really free from symbolism; it always means more than is pictorially presented. Even when it seems a faithful and complete reproduction of a visual experience, an attempt to draw from the image will convince one of its inadequacy. A part has to stand for the whole—to symbolize the whole. In thinking of a ship one man will visualize roughly the whole structure, another merely a sail or a mast, another the sea or a sailor, or something else closely associated in his mind with a ship, another the word "ship" either written or printed. Moreover, there are many who would not visualize at all, but would imagine themselves hearing or speaking the word "ship." Indeed, the same person may experience all these and other varieties according to the context of the word and the train of thought into which it enters. Thus we have in the image a part symbolizing the whole: one thing symbolizing another with which it is essentially connected, and one thing symbolizing another with which it is only conventionally connected. There is a gradation of imagery between two extremes, with the full picture at one end and the bare word at the other; and all influences that change mental imagery tend in the direction of pictures or in the direction of words. Is it the duty of the educator to encourage one of these tendencies at the expense of the other, or is it his duty to foster both? The ideal mind would be so richly endowed that it could use each of these powers for its own particular purpose; and there is little doubt that the ordinary mind often varies the two functions; but there is reason for thinking that to feed the one is, to a certain extent, to starve the other. One of Galton's most startling discoveries was that eminent men of science do not visualize; they verbalize. It is true that the meanings of the two words are not mutually exclusive, for we can visualize a printed page or a manuscript; but, generally speaking, when we think in words the images are either auditory or motor. Verbalization is here used as complete symbolism, the opposite extreme to the full reproduction of a primary expression.

It would be of great educational advantage if further investigations were made on the same lines as Galton's, with the object of discovering what type of mind, what modes of thought, what special aptitudes and interests, went along with the powers of vivid visualization of the reproductive kind. It is well-known that Macaulay's remarkable memory was largely visual, but we have no evidence that it was other than a visualization of the printed page: we do not know that he thought in pictures. It is said that the volubility with which he delivered his parliamentary speeches hitched and halted where his original manuscript was indistinct. He was really reading his speech from a mental image. A capacity of this kind is extremely rare, and is a natural gift, not a cultivated faculty. Some years ago I made notes of the imagery of some of my friends, and arrived tentatively at certain conclusions. Booky people, quick-witted

people, shrewd people, had visual imagery which was very scanty and schematic. Those who claimed to have abundant and vivid pictorial images seemed to be of a different intellectual type. They lacked a sense of humour, they were not "quick in the up-take," and their style of literary composition was inclined to be florid and lacking in logical coherency. These generalizations are based on a small number of instances and merely indicate lines of possible inquiry. If more extensive research bore out these provisional theories, it would discourage indiscriminate attempts to cultivate a purely pictorial imagination. Not that a pictorial imagination is of no value (it most certainly is; and as a source of intellectual pleasure it is difficult to over-estimate it), but it is probably desirable to counterbalance this form of mental process by a more severe form of conceptual thinking.

**Cultivation of the Faculty of Visualization Questionable.** These are two pertinent questions; first, is it possible to improve a person's natural powers of visualization? Secondly, if it is possible, is it desirable? And in reply to neither of these questions can an unqualified "Yes" be given.

As to the possibility of cultivating the faculty, Galton believed in it and cited instances; certain drawing masters believe in it and make it a direct aim in their teaching; the plain man believes in it as a matter of course; to doubt it seems to him sheer folly. And yet doubt it we must. For when the matter has been put to the test of rigid experiment the result has been negative. It is not a question of habitually slowing down one's thinking so as to give what usual images we are capable of time to develop; it is not a question of dwelling upon a topic until all its pictorial adjuncts have had time to emerge in the mind. That such mental habits can be acquired will readily be conceded. The real point at issue is whether the utmost one can do in visualizing to-day can be so improved upon by practice that we can, as a result of such practice, visualize at some future time more easily, more vividly, and more faithfully. That drawing from memory can be cultivated has been abundantly demonstrated. M. Lecoq de Boisbaudran, perhaps the greatest drawing master of modern times, based his success mainly upon the practice he gave his students in drawing from memory a picture or scene which they had previously studied. Mr. R. Catterson-Smith, late Director of the Birmingham Art School, achieved much success in training his students to design by getting them to draw with their eyes shut—to draw from an image definitely visualized. Much improvement in drawing took place in the experiment made by Mr. W. S. Foster on the effect of practice on visualization and the reproduction of visual impressions. In this case the three observers were trained psychologists; and, after forty hours' practice distributed over ten weeks, while all three improved in the power to draw from memory, none could discover the slightest improvement in visualization. Progress seemed to be accompanied by greater reliance upon verbal cues—upon mentally describing the thing observed, its colour, proportions, and the relations of its parts. Here we have an experiment in memory drawing, an experiment which seemed to make a special demand on visualizing powers; and yet the outcome is an increased use of verbalization and a diminished use of visualization. Does it not raise a suspicion that all mental training, whatever its nature

makes for verbalization? There seems to be little doubt that ordinary teaching devices tend to foster symbolic rather than pictorial imagination; for the teacher endeavours to make his pupils think—to get their minds to work most efficiently. And for rapid and efficient thinking an abundance of imagery of any kind seems to be an encumbrance. The scantiest and the most schematic and symbolic images serve its purpose best. Galton has pointed out that visual imagery may be almost entirely lacking in painters of the rank of Royal Academicians.

There is yet another way in which the mind economizes its energy in thinking; it uses the type of imagery (visual, auditory, kinaesthetic, etc.) most characteristic of the thinker and most natural to the topic. To try to induce a man of the auditory type to visualize things which he would naturally "auditorize" would be injudicious; to try to induce anybody to visualize an air from an opera would be more injudicious still.

It seems difficult to avoid the conclusion that in training the mind to think purposively, or—which is the same thing—to solve a problem, we cannot wisely interfere with the mechanism by which it does its work. In developing mental skill, the attention should be fixed on the goal to be attained: the mind itself will spontaneously supply the most speedy and economical means of reaching the goal.

**The Desirability of Exercising the Faculty.** This, however, is not the whole of the matter. For there are types of mental activity besides those which come under the head of thinking proper. In reverie or day-dreaming, and in the contemplation of a work of art, in listening to music or reading poetry, there is little or no purposive thinking; and it is here that mental pictures are obviously useful. Much of our enjoyment of poetry depends upon our being able to repicture in our minds the poet's imagery. It is, perhaps, possible to foster an appreciation of poetry in pupils by inculcating a habit of reading slowly—of looking for mental pictures and giving them time to form themselves before the mind's eye.

It will be seen that it is impossible in the present state of our knowledge to adjudge the precise value of visual imagery in one's mental make-up and one's mental processes; and to say how it is possible to improve one's natural powers of visualization. It seems certain that the current methods of education—no less than the education afforded by practical life and scientific pursuits—tend to impair the faculty; and it is at any rate worthy of consideration whether the interests of artistic production and appreciation do not demand pedagogical devices directed towards fostering a visualizing habit in at least some fields of mental activity. Much experimental work must, however, be done before we can arrive at any authoritative body of doctrine in this matter. P. B. B.

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**VITTORINO DEI RAMBOLDINI**, usually called **VITTORINO DA FELTRE** (1378-1446).—The typical Italian Renaissance schoolmaster, was

born at Feltre, about 30 miles N.W. of Venice. In 1396, at the age of 18, he entered the University of Padua. In 1399, Francis Carrara provided university buildings, and assigned the ox-tax and the wagon-tax for the salaries of teachers. Vittorino studied Latin grammar and literature under John of Ravenna, and rhetoric under Gasparino da Barzizza. His geometry lessons from Biagio Pelaconi were earned by performing scullery-work and valet-work for that teacher. For twenty years Vittorino remained in Padua, learning and teaching privately. In 1420, at the age of 42, he determined to go to Venice, to learn Greek from his old fellow-student, Guarino da Verona, who, for five years after leaving Padua, had lived in the house of Chrysoloras, the first Greek to teach his language in Italy. In 1422, he was called back to Padua, and for the first time, now 44 years of age, he was appointed to a public post as teacher. He refused to admit more students than he could directly supervise and personally influence. His aim was to combine Christian piety of character with academic learning. In 1425 he received the invitation from Gian Francesco Gonzaga, the ruling duke of Mantua, to take charge of the court education in that city.

Gian Francesco and his wife, Paola dei Malatesti of Rimini, were both devoted humanists. These rulers, and their educationist, Vittorino, endeavoured to intensify the old Mantuan tradition of Virgil, who was reputed to have been born in the village of Andes, now Peratole, close to that city. Vittorino made no stipulation as to the amount of his salary, saying he would go to Mantua "to propagate virtue, not to make gain." But he demanded undivided authority over the young princes and their servants. The duke met him liberally in the supply of money for Vittorino's purposes, allotting him a special villa (close to the ducal palace), called the *Casa Zoyosa*, or *La Gioiosa*, the pleasure-house.

**Educational Methods and Ideals.** This name for his school was applied by Vittorino to the pleasures of literature, and signified to the pupils the happy refinement of a cultured life joined to the exhilaration of due physical exercise and sports. The moral discipline was rigorous. Luxury was banished. Simple food only was allowed, and the course of work made semi-monastic. In the summer months, the whole school was taken to villas in the Alps, to Goito, Borgoforte, or to the Lake of Garda, so that Vittorino may be said to have anticipated the modern school journey and the vacation school, as well as reading parties.

His choice of pupils included as readily the poor as the rich, and it is said that, in the case of extremely poor boys, he sometimes paid a yearly pension to the parents.

Department of body, neatness of work, grace of speech, courtesy of manner, were required from all. Correct accent, intonation, emphasis in pronunciation, were practised in daily reading aloud. It is said that some pupils knew by heart the whole of Virgil. Though himself one of the best Greek scholars of the day, he brought over, on his own initiative, natives of Greece, to provide an atmosphere of Greek pronunciation and knowledge. The curriculum provided for every subject of the encyclopaedia, except civil and canon law and scholastic philosophy. His pupils included girls as well as boys. To rich, courtly pupils he was "the father" of his scholars, as afterwards Pestalozzi

was "the father" of his poor pupils. The court school of Mantua combined the best courtly and physical tendencies of chivalric training, the pietist devotion of the best monasteries of the Middle Ages, and the new learning and humanism of the Renaissance. The educational application of the idea of *noblesse oblige* was effectively impressed on the young nobles, and the nobility of intellectual effort, trained and used for the public good, made the school as much a civic as a court institution. His charity knew no bounds; he gave to poor students, debtors in prison, for the ransom of slaves, for the dowers of poor girls, for the purchase of medicine for the sick. F. W.

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 [It may be noted that Vittorino left no published works.]

**VIVES, JUAN LUIS.**—One of the leading educational writers of the Renaissance, was born at Valencia in Spain, 6th March, 1492, the year of the conquest of Granada and expulsion of the Moors from Spain. He came of noble families both on his father's and on his mother's side. After preparatory education in the Valencian Academy, he studied in the University of Paris, and became trained in scholastic learning, against which he revolted, and passed from the "cimmerian darkness" of mediaevalism to the "good letters" of the Renaissance. In 1519, at Louvain, he wrote the *In Pseudo-dialecticos*, which established him as a leader against scholasticism. At Louvain he was tutor in 1518 to William de Croy, a youth of 20 years of age, of great promise, whose death in 1521 overwhelmed Vives. At Louvain, Vives and Erasmus became close friends, the former receiving (3rd March, 1520) a licence from the university to teach privately, the latter being the director of Busleiden's foundation, the College of the Three Languages, from 1517 till 1522. Vives edited for Erasmus St. Augustine's *Civitas Dei*, finished in 1522. This work was dedicated to King Henry VIII, and, in 1523, with the goodwill of that monarch, of Wolsey and of More, Vives was brought to England, and between 1523 and 1528 divided his time between England and Bruges. In 1524 he married Margaret Valdaura at Bruges. The portion of each year he spent in England was distributed between Oxford (Corpus Christi College), where he lectured on classical subjects, and the Court of King Henry VIII and Catharine of Aragon, his country-woman. In the divorce proceedings, he was placed in *libera custodia* for six weeks on account of his friendliness to the cause of Queen Catharine. He then left England, losing his appointments and pensions. For the rest of his life his main centre was Bruges, where he died in 1540 at the age of 48.

**Character and Work.** In a letter from Louvain in 1518, Erasmus says: "Here we have with us Luis Vives. Young as he is, there is no part of philosophy in which he does not possess a knowledge which far outstrips the mass of students. His power of expression in speech and writing is such that I do not know any one who can be declared his equal at the present time." Sir Thomas More wrote in 1519: "I am ashamed of myself and my friends,

who take credit to ourselves for a few brochures of a quite insignificant kind, when I see a young man like Vives producing so many well-digested works. . . . Who is there who surpasses Vives in the quantity and depth of his knowledge?"

Vives is the typical instance of the humanist classical scholar in the first half of the sixteenth century, who regarded scholarship, not as an end in itself, but as a means for social service. He said: "We (scholars) must transfer our solicitude (from princes) to the people"; and again: "Having acquired our knowledge, we must turn it to usefulness, and employ it for the common good." Consequently, being at a transition stage between mediaevalism and modern times, he is remarkable for his instinctive fascination towards the lines of development afterwards taken in the progress of modern thought. He is the pioneer, for instance, of Bacon in the advocacy of observation and experiment in the natural sciences, and in his employment of the inductive method. He wrote the first modern history of philosophy. He is the father of the empirical treatment of psychology. He is the first writer to suggest in detail an organized system of poor-relief as a civic and natural duty. He claims the highest recognition as an apostle of universal peace among nations.

When these facts are borne in mind, we are prepared to find that a man of such wide knowledge and interests would write a book of great significance in relation to his times on the subjects of education.

**Vives and Education.** Vives' book *De Disciplinis* is divided into two parts: the *De Corruptis Artibus libri vii*, and the *De Tradendis Disciplinis libri v*. The former part deals with the degeneration of knowledge since the classical times, when the liberal arts flourished. There is to be found here an immense amount of interesting material, probably, on the whole, the best picture in a single work of the state of the whole range of knowledge, at the beginning of the sixteenth century. The second part, the *De Tradendis Disciplinis* or the *Transmission of Knowledge*, may be described as the positive or constructive side of Vives' treatment of education, i.e. his educational theory. The five books deal with *Educational Origins, Schools, Language Teaching, Higher Studies, Studies and Life*, and a charming essay on *The Scholar's Life and Character*, as it should manifest itself both to himself and to the world.

Vives is the first modern writer to ground education on psychology. "Observe the child, and adapt your aims and methods to his needs" may be said to be his main principle. Only those fit for the higher learning should proceed to it. The slow wits are more to be trusted than the quick. Conferences of masters of each school should meet every few months and determine individual procedure for each boy. The vernacular, not Latin, should be the medium of instruction. Boys should be allowed (contrary to the custom of the times) to speak in the vernacular in playing-times. All languages, Latin included, should be taught by the direct method. Grammar teaching should be reduced to a minimum. Reading of authors, is the chief and first concern. Vives was the first to attach importance to the teaching of modern history. He thinks that Froissart, Monstrelet, Comines and the Spanish Valera "are not less worthy of being known and read than the majority of Greek and Latin historians." He has much to

say as to the importance of religious education. Pupils should "enter into their schools full of reverence, as if into holy temples." Education has for its purpose the culture of the mind. It is not merely the instrument "for acquiring honours or money." Payment of teachers should not be based upon capitation fees but should be arranged by the state, so that teachers' salaries should be "just as much as a good man would desire, but such as a bad man would despise." Teachers should not be anxious for large numbers of pupils, but for excellent, intrinsic work. "Christ taught for our service, not for His own ostentation." "Who can bewail the fewness of his scholars, when the Creator of the world was satisfied with a school of twelve men?"

The special quality of Vives' treatise is this demand for the highest and best disinterested work of the teacher, and the glow and love of acquisition of knowledge on the part of the pupil. Sir Thomas More had written his *Utopia*, where even the sea-faring man was excellently trained in Greek as well as in Latin. Vives, who was one of the happy band of visitors to More's house at Chelsea, is characterized by the same spirit. Both were not only learned men, but also lovers of knowledge. The spirit of Vives' treatment of education, in this work now translated into English for the first time, may be stated in his own words: "If you think, friends, that I seem to offer right judgments, see well to it that you give your adherence to them because they are true, not because they are mine. . . . You, who seek truth, make your stand, wherever you think she is."

Other writings connected with education, by Vives, are on the education of girls (*de Institutione Feminae Christianae*), 1523; a scheme of curriculum for a girl (the Princess Mary, afterwards Queen Mary, of England); and for a boy, Charles Blunt, Lord Mountjoy (*de Ratione Studii Puerilis*, 1523); a little handbook on the conduct of life (*Introductio ad Sapientiam*, 1524); the relation of men's and women's education (*de Officio Mariti*, 1528); a treatise on letter-writing (*de Conscribendis Epistolis*, 1536); and a book of colloquies or conversations for school-boys (*Linguae Latinae Exercitationes*, 1538).

Vives' views on the education of women and girls mark the transition from the old ascetic basis to that advocated by Sir Thomas More, and illustrated in the training of his own daughters, with whom Vives was personally acquainted. Vives' colloquies give a spontaneous account of Renaissance ideals in education, seen from the point of view of both teachers and pupils. His attitude to general problems is disclosed fully in international matters, especially as to war and peace, in *de Concordia et Discordia in Humano Genere*, 1529; in the development of psychology, in *de Anima*, 1538; in poor-relief, *de Subventionem Pauperum*, 1526; and in religion *de Veritate Fidei Christianae* (posthumous), 1543.

Later writers regarded Erasmus (*q.v.*), Budé (*q.v.*), and Vives as a triumvirate in the Republic of letters, in which Erasmus held the palm for literary resource in expression, Budé for mental ability (*e.g.* in research), and Vives for soundness of judgment.

F. W.

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**VOCABULARY OF A CHILD, THE.**—A child possesses at birth the physiological mechanism of speech, and inherits a tendency to use his vocal organs, but language is the product of development, in the individual as in the race. The infant's cry speedily becomes differentiated into sounds that express such primitive emotions and wants as hunger, pain, anger. At three or four months begins the period of babbling or vocal play. These vocal gymnastics serve as raw material for the later evolution of articulate speech. During the second six months of life, developing consciousness of his environment and the emergence of the imitative impulse lead the child to attend to the sounds uttered in speech by those around him, and to strive to reproduce them. Imitation is an enormously important factor in the child's acquisition of words, as is also his discovery that words are an effective means of obtaining satisfaction of his desires.

By the end of the first year, the vocabulary of the average child is limited to less than a dozen words. Names of the articles of his food and dress, of actions that he performs, of things and animals that especially attract him, terms expressing primitive social relationships, are the constituents of infant vocabulary. Since the muscles concerned in voice production only gradually attain coordination, a young child's pronunciation of words is very defective.

An important limiting factor in a young child's vocabulary is the small span of his consciousness. Space for him is confined to the "here" and time to the "now." Hence at first words serve merely to direct attention to objects and occurrences that are actually present. The development of the power of forming images enables him to begin to realize the absent, the past, and the future, though, of course, within small range in the first two or three years of life. With the growth of memory and imagination, words become of increasing value to the child in social intercourse, and, as a result, his small store is rapidly enriched.

**Lines of Growth.** The limitations of a young child's vocabulary drive him to eke out his verbal poverty by the plentiful use of gesture, intonation, and facial expression. For the same reason he makes a single word do duty for an adult's entire sentence. *Up*, to the attendant adult, accompanied by significant gestures, means "Take me up";

*Ball*, cried in angry tones to the rival possessor signifies "Give me the ball."

Again, the limitations of a child's vocabulary are apparent in his application of words to objects or experiences to which they are inapplicable. *Pussy*, to one child, indicates the domestic cat and also his mother's fur coat; *daisy*, to another child, means all flowers, while *dada* is commonly, at first, the general term for all men. Darwin's grandchild applied the word *quack* to a duck; then extended the term to the water in which the creature swam; then to all birds, insects, and liquids. Other examples will readily occur to all observers of young children. Generally it is objects associated together in the child's experience, or between which he discerns some likeness, that receive the same name. Increased experience and growth in analytical power impel him to attend more closely to differences and distinctions in the things around him. More words are necessary to express these distinctions, and so his vocabulary is enlarged.

Social pressure aids largely in the process. People laugh at his blunders, correct him, direct his attention to unnoticed features in the object, give him the right word, and the native tendency to social conformity assists in the widening and shaping of his vocabulary in accordance with conventional standards.

As has been previously pointed out, it is concrete terms, names of things and their more interesting qualities and actions, that form the preponderating elements in a young child's speech. *Hot, cold, sweet, nice, big, little, eat, drink, walk, dance*, occur before terms like *yesterday, heat, colour, size*, and similar expressions. Adverbial expressions, except simple terms for time and place, are relatively late in appearing, as also are prepositions and other relational words. The place of such words is taken by gesture. Expressions like *up, down, on, under, and*, occur before such as *except, unless, toward*. Early speech has no pronouns. *I* and *mine, you and yours, he and his*, etc., do not occur normally till about the beginning of the third year. Pressure on the adult's part and conscious imitation on the child's gradually extend his vocabulary to the pronouns and the correct inflected forms of the verb.

**Individual Differences.** Records of children's vocabularies have been made, and they indicate rapid acquisition of words in the latter part of the second year, and during the third year. A child of two may not use more than twenty or thirty words, but it is more probable that he will employ 200 or 300 or more, and the vocabulary of a child of three in an educated home may contain over 1,000 words.

Differences in native facility exist with regard to language as to other things. Some children know and use words freely, as others evince early aptitude in expression of musical sounds. An educated and intelligent social environment is also an important factor in a child's language development. Children who live almost exclusively in a grown-up world tend to be precocious in their knowledge of words. The naturally bookish child has also a more extended range of vocabulary than other children.

School activities, and especially reading, bring new elements into a child's vocabulary. But mechanical teaching and the use of uninteresting reading-books militate against language growth

in the pupil. The close connection of practical experience and concrete objects with their verbal symbols is continually necessary in the early years of school life, as is also the practice of oral and written verbal expression on the part of the child. In all stages of education, the growth of ideas involves extension of vocabulary, while an enriched store of words tends to the classifying and stimulating of thought. S. Y.

**VOCAL MUSIC, THE CHOICE OF.**—The choice of the music to be studied by his class is perhaps the most important of all the responsibilities of the teacher of a singing class. It is not too much to say that by using poor and trivial music a teacher is taking away with one hand what he is giving with the other. The cultivation of a wholesome taste in the child is of primary importance; the development of technique is of secondary importance. "That children should only hear and learn what is intrinsically good is the fixed principle which should govern the use of music in schools." (*Circular 873*, Board of Education.) The acceptance of this axiom rules out much of the music that has been popular in our schools; e.g. Barnby's "Sweet and Low," Smart's "Queen of the Night," and other similar songs. It is a mistake to think that children cannot appreciate music of a better quality than these.

**The Value of Traditional Songs.** There is now general agreement about the educational value of the traditional song. The best authorities agree in making it a centre from which an ever widening circle of knowledge and appreciation should grow. "Such songs are the true classics of the people, and form the foundation on which a national love of music can be built up": "Folk music is spontaneous, natural music, and, as such, simple and direct in expression, bearing the same relation to art-music that wild flowers do to garden and hot-house flowers." (Cecil Sharp.) These songs make a strong appeal to children, and, as they are easily learned, a great number of them should be committed to memory. Common sense will prevent a teacher's choosing songs unsuitable to the ages or inclinations of his class. As there is a wide selection of traditional songs, easily obtainable for school use, all tastes may be suited. Among the best and most useful collections of such songs are—

*Song Time* (for young children) (Curwen); *The National Song Book* (Boosey); *Songs of Britain* (Boosey); *Folk Songs for Schools* (Curwen); *Folk Songs for Schools* (Novello).

Two objections are frequently raised against the words of Folk-Songs. (1) "They are not Poetry." Such criticism fails to see the natural poetry in these songs. Of Percy's *Reliques* (folk ballads), Sir Walter Scott wrote "... nor do I believe I ever read a book half so frequently, or with half the enthusiasm"; and Wordsworth wrote: "I do not think there is one able writer in verse at the present day, who would not be proud to acknowledge his obligations to the *Reliques*." (2) The objection to the unsuitable character of the words for children is now answered finally by the publication of collections edited for school use.

**Part Songs for Senior Classes.** If traditional songs such as these have been the staple fare of the younger children in a school, songs of another kind can be introduced in the senior classes. But even here new folk songs should be learned, and old

ones kept up. At this stage some carefully chosen songs, rounds, and part songs should be studied. A large and growing section of modern opinion inclines to the belief that, while not excluding songs by foreign composers, the principle of nationality in art should be adhered to in school music if we are ever to become again a great musical nation. It is certainly reasonable that beautiful songs by British masters such as Purcell and Arne should be learned in all our schools, and should have the first claim upon us. But, while there is much to be said for the occasional use of a song like Schubert's "Who is Silvia?" the use of songs by the lesser foreign composers (Abt, Giebel, Kinkel, Kucken, etc.) is indefensible from all points of view.

Some of our most beautiful music is to be found in the form of rounds and canons. These serve as an excellent introduction to part-singing.

Apart from songs by our older composers, modern writers such as Dunhill, Elgar, Holst, Howells, John Ireland, Parry, Martin Shaw, Somervell, Stanford, Vaughan Williams, Charles Wood, have written or edited music of lasting worth suitable for school use.

The following points should be remembered—

1. Not all songs published "for school use" are fit for that purpose.
2. Of all types of song, the "ballad concert" song is the most unsuitable for school use.
3. The best of the music hall songs are heard so frequently that there is no need for them to be taught in schools.
4. For infants, singing games are preferable to action songs.

G. T. S.

#### References—

STAINER and BELL. *School Music*.  
WILLIAMS, JOSEPH. "St. Cecilia" Series. *Unison Songs, Two-part Songs, Three-part Songs*. (Curwen.)  
*Unison and Part Songs*. (The Year Book Press.)  
*School Music*. (Novello.)

**VOCAL MUSIC, THE TEACHING OF.**—In this article only the broad outlines of method are given, and much relevant and complementary detail must be left to the experience and imagination of the teacher. Suggestions for voice-training and the choosing of songs are given under VOICE CULTURE and VOCAL MUSIC, THE CHOICE OF. The other branches of the subject can most conveniently be dealt with under the three headings—

- I. Songs (including part-songs).
- II. Sight-Singing and Theory.
- III. Appreciation.

**I. School-singing stands or falls by the song.** It should be the pivot on which the whole of the teaching turns. It is an unrivalled means of self-expression, and the path to the appreciation of the beautiful in music. Its humanizing and refining influence upon character is beyond question. Care should be taken, therefore, that a proper proportion of time is always allowed for song-singing. It must never be crowded out of the lesson by theory or sight-singing. It is a good rule to follow that at least half of every lesson should be devoted to song-singing. It may even be quite properly introduced into lessons other than the singing lesson. The informal humming of a song by girls at needlework, or by boys doing handwork, is in itself a beautiful thing, and may sometimes be

used as an alternative to the reading aloud often indulged in. By this means the interest in songs learned in the past is revived, and the danger of their being forgotten is minimized.

The following points should be noted—

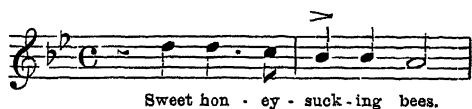
(a) **TONE.** The teacher should insist on getting from his class the same qualities of tone in song-singing as he gets from it in the voice-training exercises. The tone acquired in the latter must never be allowed to degenerate in the former. This principle applies equally to pronunciation of words, enunciation of vowel sounds, consonants, etc. The gradation of tone learned in the voice exercise (*i.e.* the principle of the crescendo for the upward, and the diminuendo for the downward passage) should be carefully carried out in the song. The following is an example of an excellent natural effect of light and shade gained by this means—



The natural way of singing the two phrases fortunately coincides with the treatment of the registers in the child's voice.

(b) **INTERPRETATION.** The character and mood of the song should be well reflected not only in the quality of tone used, and by means of light and shade, but also by facial expression. A singer should "look" the song as well as sing it. A row of children with wooden faces, singing "Come, lasses and lads," or "Annie Laurie," is a sure indication that the jollity of the one and the tenderness of the other are not making their full appeal, and that the singers have not surrendered themselves to the emotional influence of the song. Facial expression may, however, easily degenerate into self-conscious grimace, if the teacher is unwise enough to do more than encourage the class to feel the beauty of the song and try to show it by their attitude and appearance. It cannot be "taught in platoons."

(c) **VOCAL ACCENT.** In vocal music the bar line is not an infallible guide to correct accentuation. The plan of always accenting the first beat in the bar often leads to absurdity, and unnatural stress upon some of the weaker syllables is the consequence: "Sweet honey-sucking bees," sung as below, becomes ridiculous.



An inquiry from the audience as to what a "sucking-bee" was should be the logical consequence of such a performance.

The primary accents in a sentence should be selected and marked in singing, and the weak syllables passed over lightly, though of course sung clearly; the natural accentuation of the words

must be followed: *e.g.* "Who is Sylvia?" is often sung as—



The deadening effect of the dynamic equality of tone for "who" and "is" and the two syllables of "Sylvia" (with the second syllable slightly accented, if anything) is apparent.

In the next phrase of the song—



The second note for the word "she" should be sung lightly, and the first note should be given a slight "push," or stress. Proper management of accent gives life to a song. Without it the song is dead.

(d) **RHYTHM.** Some teachers adopt the plan of teaching what is loosely called the "time" of a song in monotone, apart from its melody and words. This is not a sound method, because the musical rhythm divorced from the rhythm of the words is often difficult in itself; whereas the rhythm of the words combined with the tune invariably makes the musical rhythm easy to learn. The following rhythm is by no means easy for a class of children to grasp—



The same rhythm with the words sung to it becomes considerably easier—

"Little black devil, get in front!  
Way for the T.B.D.!"

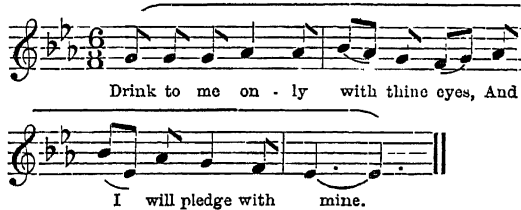
With the tune added, the passage is robbed of half its difficulty—



This passage is taken from the inspiring "Song of the Fleet at Sea" (Martin Shaw). Owing to its lilt and swing children can learn it easily and quickly. But, if the "time" method shown above is adopted, its easiest features become transformed into real difficulties. Once the child has grasped the close connection between the rhythm of the words as sung and the rhythm of the words as read there is little difficulty in the most complex rhythms. On no account should the learning of the song be interrupted by lengthy blackboard exposition of the "time" method. It is far better, in a case of real difficulty to teach the passage by ear, and defer the explanation until the next theory lesson.



(e) PHRASING. Musical phrasing must not be destroyed by over-observance of commas in the words; e.g. the music set to the first two lines of the well-known national song given below is clearly to be sung in one broad phrase, in spite of the comma between the two lines of verse. The musical phrase is more important than the observance of the comma.



Undue liberties must not be taken with the musical phrasing for the sake of dividing the sentences of the poem clearly. Nor should there be an interruption in, or an interference with, the rhythm for that purpose. "Come, lasses and lads" is sometimes sung in a manner approximating to this—

"Come, lasses and lads! | get leave of your dads! | and away," etc.

—and the phrasing of the music goes by the board.

On the other hand, care must be taken to finish one phrase clearly before beginning another. The musical example given above under (a) consists of three distinct musical phrases: (1) "Oh, don't deceive me," (2) "Oh, never leave me," (3) "How could you use a poor maiden so!" The careless running of the first phrase into the second phrase would quite destroy the balanced effect of the repetition of the melodic outline, as well as being clearly against all sense.

(f) CONDUCTING. Speaking generally, much unnecessary conducting is done by teachers. A simple song scarcely needs conducting; a few beats here and there indicated by the hand are quite sufficient to pull a class together. "Keep your eyes on the baton" is an excellent maxim for an orchestral player, or a singer in a large chorus, but the strict observance of it in a small singing-class militates directly against self-expression. Communal rhythmic feeling is well illustrated by a class of children singing without a conductor. There is certainly no necessity for exaggerated gestures and dramatic attitudes on the part of the teacher. He must get the children to express their own feelings, not his. Suggestion on his part should be sufficient, and he should aim at an easy, natural movement of arm, hand, and wrist if it is found necessary to conduct.

The tempo must be carefully considered, but the natural tempo generally suggests itself, if the character of the song is grasped. As a rule songs are sung too slowly, especially the lively songs; e.g. "Come, lasses and lads!"

(g) ACTION SONGS. The teaching of action songs rarely achieves its purpose. It generally results in set, stilted movements, learned by drill, and patently mechanical. For young children the singing game is far more enjoyable and educational. Singing while playing a game, or dancing in a ring, has a freedom of expression all its own. Flapping the hands in imitation of a bird, or pointing to the sky when the word sun is mentioned,

when done by a whole class standing in rows, becomes a stiff convention.

(h) INDIVIDUAL SINGING. It is a good plan to accustom individual members of the class to sing alone. Self-reliance is gained, and self-consciousness lost in this way, while individual progress can be seen by the teacher. But it is a bad plan, for obvious reasons, to allow only one or two members of the class to share this privilege.

(i) TREATMENT OF THE NEW SONG. The new song should first be played or sung through by the teacher, and then the class should attempt to sing it right through. Time should not be wasted over difficult passages if the class, after one or two attempts, does not succeed in grasping them. It is better to teach these passages by ear. (See above in (d).) It is more important that the class should grasp the character and mood of the song as a whole than that they should "try, try again" for ten minutes at two difficult bars.

**The Teaching of Part Songs.** The chief difficulty in the teaching of part-songs is that the children singing the under-part or parts will not at first be able to keep to their parts. They will either wander aimlessly, or drift into the first part, perhaps singing it an octave lower.

The easiest approach to part-singing is undoubtedly through the singing of rounds, in which each of the parts has the same tune to sing.

The wise teacher will not allow his class to sing in parts unless, or until, the tone in unison singing is entirely satisfactory; otherwise coarseness of tone, and the misuse of the chest-voice by those singing the lower parts, will be the inevitable consequences. In any case, it is advisable to use part music for equal voices as far as possible, and to divide the class in such a way that the under-parts are sufficiently strong numerically for them to be heard without having to strain the voice. Those who sing the first part in one song need not necessarily sing the first part in another song; change of parts is desirable.

Folk songs or national songs should not be sung as part songs. Their beauty is melodic, and when they are harmonized in an ordinary conventional manner, their beauty is gravely impaired. Unison singing should be the rule for this type of song.

The following hints will be found useful—

1. The class should first learn the words and tune of an easy round in unison. The teacher should then divide the class into two, and place the two halves in opposite corners of the room. (If possible the school hall should be used.) The round should then be sung in two parts only. The distance between those singing the two parts makes it easier for each half to keep clearly to its part. At first both parts should be made to sing quietly. This serves a double purpose; the parts do not hear each other so much, and independence is assured; also it becomes much easier for the teacher to locate exactly any "wandering." Note those who sing their part firmly and build round them; place the wanderers next to them.

2. Divide again into 3 or 4 parts as may be required, and use the other corners of the room. Proceed as before. When this is done, an eight-part round is as easy to sing as a three-part round.

3. The teacher should then gradually draw the class round him from the corners to the centre of the room, and the volume of tone can gradually be increased and varied. By now complete



independence of part-singing in rounds should be achieved.

4. An easy two-part exercise on the blackboard can now be given, the parts of which should be learned by heart (to sol-fa syllables, if it is found easier).

Ex. Key D—

1st part—d' t d' r' s t d'

2nd part—d r m f s f m

Divide and separate the class, proceeding exactly as in round-singing. Change over the parts.

5. A third part may now be added.

Ex. Key D—

New part— $\begin{cases} d' t d' r' s t d' \\ m f s l s s s \\ d r m f s f m \end{cases}$

Proceed as before. Change the parts about.

6. An easy two-part song can now be attempted. From this stage onwards there should be very little difficulty in part singing.

**II. Sight-singing and Theory.** These two important studies are too frequently neglected, or at least given but scant consideration in schools. The best method is to take the two subjects together, the first being the practical complement of the second (*i.e.* the sight-singing being used as exercises in theory).

It is not within the scope of this article to discuss the relative merits of staff and sol-fa notation, but undoubtedly the balance of opinion is in favour of training children to become conversant with the use of staff notation by means of the sol-fa system. Practically all experienced teachers agree that on the one hand to attempt to teach staff notation without the aid of the sol-fa principles is to increase the difficulty enormously, and on the other that to limit the child's musical knowledge to sol-fa notation is a serious mistake. The root principle of the movable Doh can be applied easily to the staff notation after quite a short course of teaching in sol-fa.

The earliest stages of all will best be taught by means of the modulator. This is perhaps the most abused piece of apparatus in the school. Used intelligently, it is invaluable. Used at haphazard, and unsystematically, it can easily be a positive hindrance to musical progress. The following is a modulator exercise taken down note by note as pointed on the modulator by a teacher to whom was entrusted the task of teaching singing to a class of children in a school—

Key C—

a

d m s d' s m d r d m d f d s d l

b

d t d d' t d' l d' s d' f d' m d' r d' d

c

m s f e s f m s f e s f m s f e s

d

d t a l t d' t a l t d' t d t a d' t l s e l

e

f

s l s e l s f d l d' r m d t l s l d s l

g

d l d m s d' s m d

It was not surprising that when asked to sing from memory the simple melodic phrase d m f l r s, the same class failed ignominiously.

This exercise seems to fall into certain clearly marked sections, each section being intended to teach some special point.

a. The common chord, "establishing the key." It was quite unnecessary "to establish the key" on the modulator. The proportion of songs or tunes which begin by "establishing the key" is so infinitesimal that it can be neglected. All exercises should be real tunes, unhampered by pedagogic conventions.

b. The teaching of intervals from d and d'. This is valueless: with this mechanical arrangement, the children could have continued to sing this section of the exercise with their eyes shut.

c. Teaching fe; but in a very lopsided fashion, with the worn-out old idea that fe must always be immediately corrected by f. No use at all is made of fe as a means of modulating to the dominant key.

d. Teaching ta. Similar criticism applies here.

e. Teaching se. Similar criticism applies here.

f. Teaching various intervals by dodging. This section is an unmusical and meaningless string of notes.

g. Ending clearly in the key. A ridiculous convention.

Apart from these particular criticisms the exercise as a whole is without value because it is so utterly unlike any music that a child ever sees or hears. It lacks any rhythmical basis, however elementary and simple. It has no kind of melodic interest.

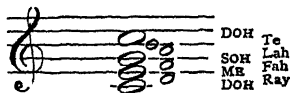
It is always better to divide a long exercise into clear-cut, tuneful phrases. The long array of notes: d m s l f m r m f e s d' t r s s m d' s l t a l d' r' t d' f r d begins to have some semblance of meaning if given to children in some such form as—

d m s l f m r  
m f e d f m s d  
d s m d' s l t a m  
s l f e d' f r d

The rhythm suggested by arranging the exercise in this way is four bars of two beats in a bar, repeated three times. Each line is a complete melodic phrase. The modulation into the dominant and subdominant with the return to the tonic is shown clearly.

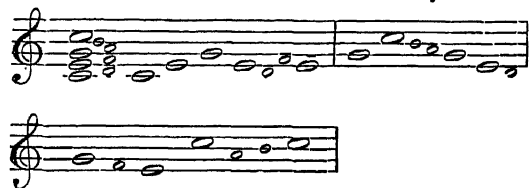
Another obvious but valuable use of the modulator is to refer to it for the purpose of elucidating difficulties encountered in songs, or in theoretical work.

But perhaps the most important step in the use of the modulator is the grafting of it on to the staff. This may best be done by first making a staff modulator and putting it side by side with the



sol-fa modulator. The basis of the major scale should be explained, the position of the semitones, etc.

The next step should be an exercise sung to sol-fa names, but without the aid of the written syllables—



A similar exercise should then be given, but without the aid of the staff modulator at the beginning, and without the difference in the size of the notes used.

The class should now learn a few note values: *e.g.* ♩, ½, and ¼. An easy way at first is to call these notes respectively penny, halfpenny, and farthing. Farthing = 1 beat, halfpenny = 2, penny = 4.

Then this exercise—



The class should first name these notes in sol-fa, and then attempt to sing the exercise in correct time (without previous practice in this respect). It is probable that a class of fairly intelligent children will do this with but few faults in one or two attempts.

It is, moreover, advisable to work so quickly that the class shall arrive at the third stage without spending much time in listening to explanations. The moment a child sees how easy it is to read a simple tune in staff notation his interest in further developments is aroused. The feeling of having accomplished something, hitherto considered difficult, with comparative ease, inspires confidence. Experience has proved, as a matter of fact, that in fifteen minutes, a class that has never seen the staff notation before can arrive at this third stage.

The various keys in order should be treated in the same way. It is, however, a debatable point whether the key of C should be taken first. The plan of beginning with C and taking the other keys in order is certainly more helpful to the child; he will remember the keys in their order in this way. With the teaching of the other keys should go, hand in hand, the further teaching of rhythm, time signatures, note values, dotted notes, etc. The explanation of the necessity for sharps and flats in the various key signatures is important, and is bound up with the knowledge of the scale.

All sight-singing is ultimately based on the training of the ear. This is often done in a very perfunctory manner. Seeing that so much depends on accurate hearing, special care should be taken from the earliest stages onward to ensure that children shall at least acquire a good idea of relative pitch. It is, indeed, by no means beyond the bounds of possibility for them to acquire the gift of absolute pitch. By constant practice it does not become difficult for them to pitch middle C. The unanimity of a whole class trained in this way is extraordinary.

The first step in ear-training is naturally the relations of the notes of the common chord, first

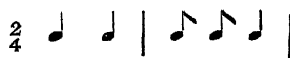
to the tonic, and then to each other. (The use of the sol-fa names here is almost indispensable.) When proficiency is gained in singing these notes in any order, other notes of the scale should be added; first, perhaps, "t," the leading-note, then "r," and lastly "f" and "l"; though, of course, another order of the notes is quite possible. The modulator should be used carefully in this process: and it is equally important that it should also *not* be used: *i.e.* when the notes at each stage have been learned from the modulator, it should be taken away, and the class should accustom itself to sing intervals, and the notes of short phrases, by visualizing their position on the modulator.

Along with this teaching should go the converse of it. The class should be taught to name the notes of phrases sung or played by the teacher. Experienced teachers know that a practical difficulty here arises. The "hold up your hands" method is by no means satisfactory, as it encourages guessing, and worse, the repetition of answers given by other children. Pieces of paper and pencils for the class prove to be a solution of this difficulty.

The teacher should give the ear-test twice, clearly. The class should sing the test to La, and then write down the names of the notes in sol-fa. This plan ensures each child's thinking for himself. The training of the ear in rhythm is often left to the later stages. This is not a good plan. Training in rhythm should run concurrently with training in pitch. It is very easy to teach a class first of all to find the time-signature of a simple tune played or sung to them. The children should listen for the first beat in each bar, and mark that in some convenient way (clapping or tapping the desks). The aural appreciation of accent presents no difficulties to children. Once the first beats of the bar are found, the rest is easy arithmetic. The class should count out loud, and learn to beat time to the tune.

The next step is to teach the rhythmic contents of bars. The teacher should sing two bars of a simple tune, *e.g.* "Farewell, Manchester." The class should find the time-signature and then sing the tune (using sol-fa syllables), and beat time to these two bars. They should then write down the rhythm on their slips of paper. This affords excellent practice in writing either notation; the French system of time-names can with advantage be adopted.

The correct answer would be given thus—



The next step is to write down the time with melody and rhythm complete.



Key C.  
Or:— { | m : r | d f : m | }

There can be little doubt that the writing out of music greatly helps the understanding of music, and, although at first some difficulty will be experienced in getting the class to write easily and fluently, the teacher should persevere with this method.

Some years ago there existed a strong prejudice against teaching by ear. It was considered

unmusical to learn a song by ear. A more sensible view is now taken, and it is recognized by all teachers that learning by ear is a valuable part of musical education. If a child can repeat accurately a tune of four bars sung once by the teacher, it argues a considerable musical capacity in him. Easy phrases, therefore, should be given to children to imitate in the earliest stages, and afterwards these phrases should increase in difficulty and length. A further development from this is the excellent plan of singing half of a musical sentence and allowing the child to finish it in his own way; *e.g.* the teacher sings—



and asks each child in the class to finish the tune, bringing it "home" properly, *i.e.* finishing correctly in the key of C. If a child is well taught it will instinctively feel that the best shape of the tune as a whole will be secured by a conclusion with a downward tendency, and it will also preserve an exact rhythmical balance. Some such answer as this may be expected from a large proportion of the class—



Another solution would be to continue the upward tendency of the tune and finish on the C in the upper octave. This method should gradually be developed and expanded. It is proved by experience that the individuals of a class taught in this way can sing almost at once interesting and well balanced eight-bar melodies, if the first two bars are sung to them. It will be seen that the germs of composition lie in this method of teaching, and there is no reason why the children in the senior classes should not be encouraged to write original tunes to simple verses. This is an invaluable aid to rhythmical training. A good exercise for the whole class is for the teacher to recite a simple verse of four lines, and for the class to write down the most natural musical rhythm to fit these words; *e.g.*—

"The friendly cow all red and white,  
I love with all my heart;  
She gives me cream with all her might,  
To eat with apple tart."



5. There is a rhythmical balance, though not exact, as movement always tends to develop. Thus, in A we have  $xxy$ ; in B we have  $xxxyy$ . There is a close rhythmic resemblance between  $a_1$  and  $b_1$ , but in the latter section the characteristic rhythm  $x$  has been substituted for a crotchet.  $b_2$  starts as though it would imitate the rhythm of  $a_2$ , but the temptation to expand the rhythm  $y$  and make a good finish has been too much for it, and two groups of  $y$  are substituted for two crotchets.

6. There is a good example of "climax" in the tune, at the beginning of B. The tune seems to work up to this and then to subside.

7. The natural marks of expression will be a crescendo up to the climax followed by a diminuendo. The children should be encouraged to do this for themselves.

It will be observed that theory, *quâ* theory, has hardly been mentioned in this section of the article. It is advisable in music to follow the rule that the grammar should be learned through the literature. Theory, treated as a separate and dumb subject, is of little use in training the mind. It will, however, be found impossible to do without a certain amount of learning by heart. Learning about such things as the keys, rests, note-values, the great stave, clefs, names for the degrees of the scale, names of intervals, minor scales, must all involve a certain amount of memorizing facts. It has been found impossible to treat these subjects here, but they can be read up in one of the many useful text-books that abound.

**III. Appreciation.** Much of what has been said above might have been included under the title appreciation. But it was thought better not to divorce the spiritual from the intellectual; and it was therefore treated as a practical part of sight-singing.

Some advice, however, remains to be given. The teacher should endeavour to inculcate a love of listening to music, as well as a delight in performance. Occasionally a musical friend may be persuaded to come and sing, play, and talk about music to the school. A lecture, with plenty of illustrations, on English traditional music, for example, is most interesting and stimulating. A talk about musical forms, canon, fugue, sonata, etc., with examples, provides another most instructive entertainment, and a means of applying in a practical manner what has been learned in melody construction. A lecture on Hymn Tunes, their origin and development; some old madrigals and modern part-songs sung by a few members of the staff and their friends; a violin and song recital; all these can be made really enjoyable and profitable to the school. The children can thus gather for themselves a store of musical knowledge attainable in no other way.

It is best, on the whole, to avoid the idea of "programme music" which so often masquerades as an aid to musical appreciation. "This reminds one of a river flowing peacefully; it is autumn and the leaves are falling," etc., is a type of musical appreciation that leads nowhere, and encourages flabbiness of thought. The beauty of thought, mood, or sound in music will do its own work, and the teacher will be wise if he forbears to use many similes and analogies in talking about the subject (as he should do) to his class. There are, of course, many classic examples of programme music where the programme cannot be mistaken; but it is dangerous to get into the habit of inventing a

programme for every simple and beautiful little piece of music that the children hear.

The use of a good gramophone has been found by experience to be an invaluable aid to the teacher in this branch of the subject. Learning to recognize the sound of the various orchestral instruments is always popular with children. The Gramophone Company (His Master's Voice) has put on the market an excellent instrument for school use, and has collected some fine records of the best music for its educational catalogue. It is also issuing some excellent pamphlets on the proper use of the records, how best to explain the form of music to a class, etc.

A study of the underlying principles of M. Dalcroze's wonderful work will be of real value to all teachers of class singing. Much of the practical side of this method can with advantage be introduced into the usual singing lesson, especially in connection with the appreciation of rhythm. But the teacher should take care that eurhythmics as a subject is not unconsciously substituted for singing. The two subjects might very well be taken if time were allowed for them; and if it is felt that eurhythmics would be of more value to the children than singing, the teacher should not attempt it without a thorough training. Probably nothing better can be found than the exercise of the human voice for the purpose of educating children in music; and the old singing lesson, capable of expansion, variation, and always open to improvement from new sources (such as the Dalcroze system) still remains the most convenient and suitable means of instruction in ordinary schools. G. T. S.

**VOCATIONAL EDUCATION.**—In the London *Times* of 2nd October, 1915, was a statement that may serve as a text for this article, namely: "If we are to face the future with any confidence after this exhausting war, we must face it as an educated people. We shall not be able to waste the efficiency of a single English child. . . . Now there is no more appalling fact in our national economy than the waste of that supreme natural product—the child."

The exploitation of children as cheap labour is one of the blunders of modern society, a blunder analogous to, but more dangerous than the wanton exploitation of nature's gifts to man in natural products. Conservation of both is essential to the future success of civilized communities. Prof. Carver, of Harvard University, says: "Communities have grown rich in the midst of poor geographical surroundings by reason of the simple fact that they have developed the latent energy of their people and applied this energy intelligently. Scotland and New England are conspicuous examples of this kind of success. . . . Other nations have grown poor in the midst of rich geographical resources by reason of the simple fact that they have wasted their people, not simply in war, but by allowing their latent energy to remain undeveloped or to be unintelligently utilized. Speaking generally, one is safe in saying that no nation ever did prosper as compared with other nations except by reason of its superior conservation of the human factor in production."

**The Effect of Modern Industrial Conditions.** One result of the introduction of the modern system of production, with its division of labour and use of labour-saving machines, has been the creation of a large number of jobs for women and children in tending machines, utilizing Nature's resources and waiting on men who were more important

factors in production. Boys and girls can do these things cheaply and well, although it is peculiarly harmful to them because, at an age when they should be started on their vocational career, it casts them adrift, unprepared mentally, morally, and physically for adult labour. Stated broadly, this means the systematic manufacture of unemployables, a peculiarly dangerous form of waste.

Another result of modern methods of employing children is that they are now free from control of parent or master at too early an age. As wage-workers they soon become independent and irresponsible, changing jobs frequently and failing to gain any systematic training therein. The parent is unable to control them, the master does not trouble himself about their lives outside the shop, and what benefits they have received from the elementary school training are soon dissipated.

Juvenile labour must be made an introduction to adult labour, not an independent factor in the labour market. Winston Churchill says: "No boy or girl should be treated merely as cheap labour. Up to 18 years of age every boy or girl leaving the schools, as in the old days of apprenticeship, should be learning a trade as well as earning a living." No person should be permitted to employ boys and girls during these formative years without assuming some responsibility for their learning a vocation. In addition to being remunerative and vocationally educative, the job should open up prospects for the future.

An English Poor Law Commission stated that young people entering the labour market have two main difficulties to face. The work offered them is wholly uneducative and some of it is actually demoralizing; while, owing to lack of information about industrial conditions, and lack of opportunities for choice of employment, there is an unnecessary number of misfits. The Commission urges, first, the general training and development of character and intelligence; secondly, the better organization of the labour market; and thirdly, the total withdrawal of young persons from certain kinds of labour, and the further regulation of employment out of school hours.

**Remedial Steps.** A revival of apprenticeship is often proposed as a means of conserving our youthful workers. Apprentices under a good system are guaranteed good vocational training, control, and direction until manhood. The general reintroduction of apprenticeship, however, is impossible, and undesirable, under modern industrial conditions. The sub-division of trades and the specialization of processes render employers unwilling to take apprentices. The old-fashioned plan of teaching a boy who lived with his master the whole trade has almost disappeared. There is a place in modern industry for a modified scheme of apprenticeship for a limited number of boys. Our real problem, however, is with those in simpler forms of labour.

There is an enormous demand for low-skilled labour. A large number of our youth will inevitably drift into jobs requiring little technical skill, and possessing few educative qualities. Here, while we provide some technical training, the essential thing is to develop individual initiative, and provide for systematic care and training of the body. No job is entirely without educative qualities, but many demand little in the way of technique. In such cases, a more general physical, mental, and moral training must be supplied to the working

youth as a protection against, and a compensation for, the evils of our modern industrial system.

This training can be provided for, first, by raising the school age to 14 or 15. The child of 12 or 13 is entirely too young to be cut off from the control and direction of school and home, and the effects of the school influence and care are often thrown away before manhood or womanhood is reached. Such young people increase the number of competitors for low-skilled jobs, and reduce the number entering skilled trades, as very few who start in such low-skilled vocations ever change into the high-skilled trades. It is very important, therefore, to continue the control and direction of the schools up to young manhood or young womanhood.

The extension of the school age would enable the youth to broaden their general education, to develop their physique, and to consider carefully the line of endeavour in which they are to earn a livelihood. Advisory committees for vocational guidance can assist the future worker in securing the best openings available in modern commerce and industry, can study the capabilities of the maturing youth, and prevent a large percentage of the misfits that are now on the way to unemployment.

**The Compulsory Continuation School.** As all industrial activity has some educative qualities which can be utilized and developed, and as experience teaches us that there are distinct advantages in having a youth, while still continuing his school education, put in some of his time in actual practice, the compulsory continuation school is one of the most important factors in solving the problem of conservation. A system of voluntary continuation schools is no solution. Experience shows that such a system is inefficient, and the ones who most need care are most likely to be neglected.

Such schools should be organized with the distinct purpose of analysing, re-organizing, supplementing, and interpreting the experience in the vocation. In the low-skilled jobs this will, of course, require, in addition, work designed to develop adaptability, and general physical as well as mental capacity. In all such schools, general instruction must be provided that will develop the man and the citizen as well as the workman. It ought not to be forgotten, however, that, as Sir Oliver Lodge says, "Culture ought to be the natural fruit or outgrowth of life's work, and not be something merely superadded and outside. It ought to be a growth, not an accretion."

The compulsory continuation school must not be a night school, a school that will deplete the strength of the boy or girl already over-taxed in the industries or commerce. Experience has shown the wastefulness and atrocity of this form of instruction for growing boys and girls. The work of such schools must be during and not in addition to the working hours, in suitable rooms and with practical teachers who can interpret the young people's vocation to them and develop their efficiency and interest in it. No part-time teacher from an academic school can successfully manage such a course; it requires the whole of the teacher's time and interest to maintain the practical standards of such a school. The plan of instruction must of course be organized with the daily work as the centre of attention, and every subject taught must be considered in its relations to this centre, although not limiting itself to such

a view-point, as these children are more than producers—they are citizens and human beings. It is interesting to note that the German vocational association at Charlottenburg, 5th September, 1915, voted to make physical training the centre of the vocational school work.

The country boy or girl can be reached by a modification of the compulsory continuation school—the agricultural winter school as found in Switzerland, Holland, Germany, Denmark, Sweden, Norway, and Ireland. Here attendance should be compulsory, but confined to the winter months, say from November to April, with all-day instruction in subjects related to country life. The teachers should be agricultural experts, whose services can be utilized, when not in the schools, by the people in the school district. This combination has done wonders for the country people on the Continent, and is already doing much for Ireland. It hooks up the education of the school and of the job, and secures the interest of parents. If we can base the work of such schools upon a good system of elementary schools, supplemented by such schools as the Danish country high schools (see DENMARK, EDUCATION IN), the country boys and girls will be likely to be efficient and interested in country life. The Danes appear to be the only people in the world who keep the boys on the farm.

**Pre-Vocational Schools.** The pre-apprentice and other forms of pre-vocational schools will have their place in any scheme for vocational training, but it will not be a large one. They will reach a limited number of boys and girls, and will in a measure prepare them for commerce and industry, but, unless they are organized on the co-operation plan, they will always lack the practical touch that comes from vitally connecting the education of the job with the education of the school. The Germans have a saying "That no school alone can teach a vocation, and no job can teach it; it requires the co-operation of both the job and the school."

That such courses of instruction will not be successful if given an academic direction, is a prediction based on the experience of various countries of Europe. Nearly every country that has realized the need of vocational education for its young people began by establishing these courses as a temporary makeshift, on Sundays or in the evenings, under the control of the ordinary school organization. After a time people recognized the inefficiency and futility of schools so organized. Finally, people have come to see that this highly special and practical work, so fundamentally different from the problem of general cultural education, must be entrusted to people who have this great problem specially at heart—to special practical boards of management. The vocational school is not just a third-rate academic school; it is co-ordinate with, and should be independent of, the academic type of school.

**Desirable Characteristics of Vocational Classes.** Aside from secondary vocational schools and those of university grade there should be established—

1. Classes for the completion of general elementary education for students whose education is so defective as to forbid profitable attendance at specialized courses. There is danger of placing the academic minimum too high, but there is a limit below which vocational courses should not be offered, both in the interest of the youth and of the State, which needs citizens as well as workmen. Such classes, while reviewing the ordinary school subjects,

must, however, present them in as concrete a manner as possible, selecting only the absolutely essential.

2. Classes and courses in continuation or other vocational schools for specialized instruction designed to fit students for the intelligent practice of particular crafts, industries, or occupations. These classes must co-operate with the practical instruction of the job, analyse, re-organize, interpret, and supplement it, with a view to increasing efficiency, adaptability, and joy in work. The subjects introduced will be presented from the standpoint of the job, whether science, mathematics, or English, although not necessarily limited to that field only. It is, perhaps, necessary to add that training in home-making, in the broadest sense of the word, is included under these specialized courses or classes. There is no more vital phase of vocational work than the work concerned with preparing our young women for the fundamental vocation of woman—being the head of a household. It is needless to say that modern developments have tended to put within her reach further opportunities in any field of work in which she is interested, and the public welfare demands that she have every opportunity for preparation offered to the young men.

3. There should be auxiliary courses, consisting of physical training, music, art, and social life generally. As wide a field along this line should be offered as is opened to the youth in the great secondary schools of the nation. We cannot afford to raise boys and girls who do not learn how to play as well as to work. A great variety of schemes for welfare work should be left to the initiative of the students, but directed and supported by the school authorities. These might include boys' and girls' clubs, musical and literary organizations, and organizations for military drill. These are all necessary parts of the training required to fit the individual for efficient living in modern society. We must demand of our vocational schools not only personal but social efficiency. E. C. C.

### VOICE AND THROAT, THE HYGIENE OF THE.

—The production of voice as we understand it may be compared with the production of sound from a wind instrument, and for this three factors are essential in each case: (i) a motive force; (ii) a primary source of tone; and (iii) a resonator.

In the simple wind instrument a current of air (the motive force) is made to pass over a reed (the primary source of tone), and the resulting tone is modified by the hollow space (the resonator) beyond the reed. In the human subject the current of air passes up from the lungs, which are the bellows, through a single tube called the trachea, or wind pipe. This tube expands to form the larynx or voice box, which contains the vocal cords, two membranous folds, which can be brought together and so drawn across the tube at will. Above these the larynx opens into the pharynx, an irregular passage commonly called the throat. This is continuous with the cavity of the mouth in front and with the back of the nose above.

Thus there is above the vocal cords a hollow tube of complicated shape, first directed upwards (the throat), then passing forwards into a hollow chamber (the mouth), and communicating with a second chamber above that (the nose). The size and shape of this hollow tube can be altered very considerably by the position of the tongue, jaws and soft palate.

Returning to the analogy of the wind instrument, we see that breath forced from the lungs (the motive force), passes over the vocal cords (the primary source of tone), and the resulting tone is modified in the pharynx, mouth and nose (the resonators). When this much has been said the analogy of the reed instrument ceases to hold good, owing mainly to the elaboration of the human mechanism.

**The Human Mechanism.** In the first place, the vocal cords in the larynx can be moved widely apart or brought close together by the action of muscles. The tension of the cords can also be regulated by similar means. When the cords are widely apart and air passes upwards from the lungs no voice results, and ordinary quiet breathing takes place; when, however, the cords are brought together and air is forced from the lungs, the margins of the cords are forced apart and made to vibrate, thus setting up in the current of air undulations which we call vocal notes. The pitch of the note is determined by the tension of the vocal cords. This is also controlled by a set of muscles. The most elaborate part of the mechanism, however, is the resonator, as this can by movements of the palate, tongue and lips be made to assume an infinite variety of shapes with a corresponding effect on the quality of the voice. In discussing the hygiene of the voice attention should, of course, be paid to all three parts of the mechanism, but chief good will result in concentrating the attention on the resonator than on the other two. Provided that the lungs are healthy and a proper system of controlled breathing is adopted, the motive force is assured. The vocal cords are normally equal to most of the demands placed upon them, and though their vibrations can be amplified or limited with practice, it is probably a good thing if the mind is content almost to ignore the existence of the larynx under normal conditions, as there is no doubt that many vocal troubles arise from too great a concentration of the mind on this primary source of vocal tone.

At the same time it might be pointed out that care should be taken to abstain from talking or singing as much as possible if the voice becomes hoarse owing to laryngitis, as otherwise permanent damage may be done to the voice. The cardinal principle in the treatment of hoarseness is rest of the voice, however inconvenient this may seem to be at the time. It should be remembered that if hoarseness persists for more than six weeks in spite of care and attention, the advice of a throat specialist should be obtained, as many untoward conditions can be made to yield to treatment in their early stages which, if neglected, might lead to irreparable damage.

The source of most vocal troubles is, however, to be found in the resonator portion of the apparatus and this is due not only to its complexity but also to the fact that it is more vulnerable and that the structures comprising it are more exposed to attacks of inflammation of various kinds.

**Throat Troubles.** It has been pointed out that the throat proper is the passage which leads upwards from the larynx, and that it communicates with the mouth and with the nose. For the purposes of voice this passage should be widely open, and any inflammation of it is likely to have a bad effect not only on account of the discomfort of the inflammation itself, but also because the abnormal sensation may cause improper contractions of

muscles, which may constrict the throat and so interfere with the proper production of voice.

Unfortunately, the throat is exposed to a great variety of irritations which may inflame it. Some of these, such as the excessive use of tobacco and alcohol, or working in dust-laden atmospheres, are avoidable: thus a teacher who habitually uses a blackboard for long hours at a stretch cannot help inhaling quantities of chalk dust, or a singer after his opera or concert may be accustomed to refresh himself and talk with his friends for hours at a stretch in the close tobacco laden atmosphere of a tavern. Such things are detrimental. Sharp, hot foods irritate the throat, and anything likely to cause trouble with the digestive system is apt to predispose to inflammation. Unhealthy conditions of the teeth, gums or mouth may irritate the throat directly or indirectly by upsetting the digestion.

Unhealthy tonsils are a frequent source of inflammation of the throat: proper removal of such tonsils even in singers usually results in marked improvement of the voice. But very frequently throat inflammation is found to have its origin in the nose. The nose, besides being a portion of the complex resonator, has the function of warming, moistening and filtering the air which should be drawn in through it. Unfortunately in many cases the nose is obstructed either from malformation or other cause, and is not able to fulfil its function. In such cases the cold, dry, dusty air is taken in through the mouth and passes through the throat on its way to the lungs. The throat is irritated by it, and furthermore is apt to become congested and inflamed in an attempt to fulfil a function for which it does not possess the proper mechanism.

**Necessary Precautions.** The importance of proper nasal breathing for voice users can scarcely be over-estimated. In addition to mechanical obstruction in the nose, other conditions arising in the nose itself, or in the cavities connected with the nose, may give rise to a secondary inflammation in the throat, besides impairing the value of the nose as a resonator. These should be put right if the voice is not to suffer.

Attention to the general health is an important thing in voice users. It is well-known that disorders of the digestive system affect the throat adversely, and that many cases of temporary failure of voice are due to lack of proper nervous control owing to general overstrain of the system. Regular walking exercise and fresh air are extremely beneficial to voice users, whilst a timely holiday may avert a serious breakdown.

With regard to the question of the effect of external clothing as a preventor of inflammation of the throat, it is usually true that those who carefully wrap up their throats to prevent colds run greater risks of acquiring them than those who leave the throat uncovered.



There is one other matter, reference to which should not be omitted, and that is the extent to which the voice should be used during the adolescent period. It is well-known that at this time the larynx develops considerably, and this fact is apt to throw the vocal mechanism out of gear, as is evidenced by the "cracking" of the voice. Excessive use of the voice at this time may be permanently prejudicial, and anything in the nature of prolonged vocal exercises is to be deprecated.

W. G. H.



**VOICE CULTURE.**—In scarcely any subject is there such diversity of opinion as in the art of "producing" the voice. A class teacher rarely has time to make an exhaustive study of the methods advocated by professional voice-trainers, nor could sufficient time be allowed in school for him to subject his class solely to any particular method. Therefore, in training the child voice, keep strictly to broad principles about which there is general agreement.

If a child with an untrained voice is asked to

sing loudly, first  then 

he will produce the higher note with the head-voice, the lower note with his chest-voice. The first will sound easy and pleasant, the second forced and unpleasant. (It is assumed that the terms head-voice and chest-voice are understood.) The one safe rule, therefore, is to train the head-voice downwards, and to get the child to sing in an easy, natural manner. The forcing of the raucous chest-voice may thus be avoided. The chest voice can, of course, be trained, but it cannot be too strongly urged that only those who thoroughly understand the technique should attempt this.

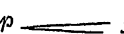

The following rules should be carefully studied.—

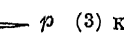
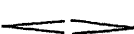
**Breathing.** (i) A perfectly natural standing position should be adopted. Rigidity in any part of body or limb will detract from the quality of tone.

(ii) The lungs should be well filled by inhaling through the nostrils. The shoulders should not be raised, nor should the abdomen protrude. (Abdominal breathing should be avoided.) The whole of the body above the abdomen should expand, and there must be no strain in filling the lungs.

(iii) The breath may be emitted steadily through the mouth either quickly, slowly, or by degrees.

(iv) The breath may then be *steadily* emitted while producing vowel and consonant (humming) sounds, on sustained notes in various parts of the voice, e.g.—

(1) Key C. *p*  *f*  *p*  
Note— *doh!*.....  
Sound—(hum)

(2) Key C. *f*  *p* (3) Key E $\flat$ .  *f*  
*fah!*..... *doh!*.....  
(hum) } ..... *oh*.....

**Voice Exercises.** (i) All exercises should be downwards. Many patterns may be evolved from the simple downward scale in all keys; e.g.—

(1) 

(2) *Slow.* 

(3) *Quick.*  
*f dim* ..... *in* ..... *u* .....  
  
..... *en* ..... *do.* )  


(ii) In all exercises it is important that a *diminuendo* (as marked in the above exercises) should be made as the passage descends. This will keep out the hard "chesty" tone on the lower notes, and encourage the pure tone of the upper notes to be drawn down and used for the lower notes. In this way, the break between the chest and head-voices will be smoothed over.

(iii) All vowel sounds should be practised. Too many teachers use *ooh* and *ah* only. Practise *a* as sounded in "name," *a* as in "and"; *e* as in "men," *o* as in "on," etc. Changing vowel sounds are also useful; e.g. *ooh-ah-ee*, *ah-eh-oh*, and other sounds on each note of downward scale, or using a different vowel sound for each note in the pattern of an exercise.

Consonants require special practice. They should be sounded clearly, but without exaggeration.

(iv) The shape of the mouth, lips, and tongue in forming vowels and consonants is important; e.g. in changing from *ah* to *ooh* there should be a clearly visible change in the shape of the mouth and lips.

G. T. S.

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**VOLTAIRE** (originally François Marie Arouet).—Was born in 1694, and educated by his father for the law, but distinguished himself at college by his talents as a versifier, and gave up the law for literature. A satire on the Regent led to a year's imprisonment in the Bastille (1717), and a quarrel with a nobleman in 1726 led to further imprisonment, followed by banishment to England. In England he learnt the English language and studied English poetry, being patronized by Bolingbroke and other statesmen. He returned to France in 1729, but was obliged to flee from Paris in 1734. The patronage of Madame Pompadour brought him back to court favour, but his writings again caused him to migrate, and from 1750 to 1753 he lived at the court of Frederick of Prussia. In 1755 he settled near Geneva, and did not visit Paris again till 1778, when the excitement of the reception accorded to him hastened his death. Voltaire's chief writings are *Oedipe*, a tragedy, successfully performed at Paris in 1718; *History of Charles XII*; *Letters on the English* in which he contrasted English liberty with French despotism; *Siècle de Louis Quatorze*, written in Prussia; *Les Mœurs et l'Esprit des Nations*, his greatest historical work; and *Candide*, a novel. From 1762 to the end of his life he wrote many works attacking the Christian faith, and many of the troubles of his life were due to his merciless satires on those in power.



## W

**WALES AND MONMOUTHSHIRE, THE UNIVERSITY COLLEGE OF SOUTH.**—The University College of S. Wales and Monmouthshire, Cardiff, which serves the most populous parts of the Principality, was founded, in 1883, in pursuance of a recommendation of the Departmental Committee appointed in 1880 to report on the condition of Intermediate and Higher Education in the Principality. It was incorporated by Royal Charter dated 1884. From its inception, when instruction was provided mainly for the purpose of qualifying students to obtain degrees in Arts and Science, there has been a gradual development in the work and activities of the College; and expansion in many important directions is contemplated.

The existing Departments of the College are as follows, and all these are open to both men and women students, who are required to be at least 16 years of age at entry—

Faculty of Arts, Faculty of Science, Faculty of Medicine, Department of Public Health, Department of Applied Science and Technology, Department of Music, Elementary Training Departments for Men and Women, and Secondary Training Departments for Men and Women. Courses of Instruction in Law for students preparing for the examinations of the Law Society, and various short Courses of Instruction in Agriculture and Dairying Science, are provided. Courses of University Extension Lectures are also arranged, and the College acts in association with the Workers' Educational Association in providing Tutorial Classes in various districts.

In 1896 the University of Wales was founded, and this College being one of its constituent colleges, its courses in Arts, Science, and Music have, since that date, been primarily intended to be qualifying courses for the degrees of the University in those faculties. The Medical Courses are recognized as qualifying for the examinations of the Universities Conjoint Board and other licensing bodies of Great Britain and Ireland, and are especially adapted to meet the needs of students for Welsh and London degrees.

Diplomas are granted at the College in Engineering, Mining (other than Coal Mining), Metallurgy, Music, the Language and Literature and History of Wales, and Economics and allied subjects. A Joint Diploma in Coal Mining is granted by the College and the Mining Board (South Wales and Monmouthshire Coalfield). Joint Diplomas in Mechanical Engineering, Marine Engineering, Industrial Chemistry and Naval Architecture are granted by the University College and the Cardiff Technical College. Special provision is made for post-graduate and research work.

The work of the College is, at present, conducted in two blocks of buildings, situated in different parts of the city. The Faculties of Science, Applied Science and Technology, and Medicine are housed on the old site, but buildings for a complete School of Medicine are in course of erection. The Faculty of Arts and the Training Departments for men and women are located in the new buildings opened, in 1909, on

a site given by the Corporation of the City of Cardiff. Arrangements are now being made for the extension of these buildings by the erection of Pure Science Buildings. There is a hall of residence for women students. (See also WALES, THE UNIVERSITY OF.) E. H. G.

**WALES, ELEMENTARY EDUCATION IN.**—Although at intervals, and more especially of late years, Royal Commissions dealing with questions peculiarly affecting Wales have been appointed, the Principality was by all "Acts" included with England for educational purposes until the establishment of the Welsh Department of Education in 1907.

**Historical Sketch.** Education in Wales owes much to philanthropy, private endeavour, religious zeal, and local and municipal enterprise. In 1563, an Act was passed ordering the translation of the Bible into Welsh. The New Testament, translated by Salesbury, an eminent Greek scholar, was published in 1567. In 1588, Dr. William Morgan, Bishop of Llandaff, "the true father of Welsh prose," published his translation of the whole Bible. In 1630, a smaller edition was issued, and sold under cost price. When the Bible in its pure Welsh became familiar to every Welsh child, the life and speech of the people were transformed. Through the instrumentality of the Rev. Thomas Gouge, English Charity Schools were founded in 1672. The instruction was given through the medium of English—an alien tongue—and these schools failed, but they were the germ out of which the "circulating schools," founded by Griffith Jones, Vicar of Llandowror, sprang.

These circulating schools were taught by an organized staff of schoolmasters who travelled through the villages of Wales. Between 1730 and 1761, 3,185 schools were organized, in which the pupils were taught to read and understand the Bible, the Book of Common Prayer, and the Church Catechism through the medium of Welsh. In 1799, there were 3,250 schools, the pupils numbering 163,858. It is interesting to note that the first Welsh reading and spelling book was published by Owen Hughes, schoolmaster, Pembrokeshire, in 1754, for his own use. Less than twenty years after the death of Griffith Jones, the circulating schools were, owing to legal circumstances, closed for a time.

At this crucial moment, the Welsh Sunday Schools (see SUNDAY SCHOOLS) were brought into existence and firmly established through the strenuous and untiring efforts of the Rev. Thomas Charles of Bala. Their peculiar value lay in their combination of secular and religious instruction, and in the flocking into them of the young, the middle-aged and the old; the latter characteristic is still a prominent feature of the Welsh Sunday School. In 1843, the Rev. W. Roberts, LL.D. (Blaenau), was appointed by the British and Foreign Society (*q.v.*), as their representative in South Wales for the purpose of establishing British schools. Shortly afterwards, the National Society

(*q.v.*) founded Church National Schools. In 1839 a separate Education Office, under the title of Committee of Council on Education, had been formed, which, in 1846, decided to make grants in aid of the erection of Training Colleges in connection with both the Societies. The pupil teacher system was set up and Queen's Scholarships were founded to help pupil teachers to proceed to college. Capitation grants were made in support of the colleges, and annual grants were also conceded to elementary schools under Government inspection of from £15 to £20, towards the salary of each trained teacher employed. Provision was also made for the retirement of teachers.

In 1846, the teachers of the British Schools appealed for the lesson books to be printed in Welsh and English on alternate pages, the two languages being utterly unlike in genius and idiom.

**The Royal Commission of 1847.** A Royal Commission was appointed in 1847 to investigate the condition of education in Wales. Their *Report* stated that there were but few schools in a large number of parishes and in some none at all; that in many instances, the kitchen of a farm house, part of an outbuilding, the loft over a chapel or even a stable, was utilized as a schoolroom; that the average age of the schoolmasters was over 40 years, that at which they began to teach being more than 30; that the number trained was only 12.5 per cent. of the whole, and the average period of training only 7.3 months. The average income was £22 10s. 9d. per annum, though 16.1 per cent. of the teachers occupied a house in certain districts rent free. The State augmented the salaries paid by the managers to teachers who had obtained by examination a certificate of merit, and whose schools were favourably reported on annually by inspectors, provided that they also gave satisfaction to the managers themselves.

The Report of the Royal Commission dealt so drastically with the social, religious, and educational life of the Principality that the indignation of the whole of Wales was aroused at what was felt to be an unsympathetic and unjust condemnation of the Welsh people. As a result, there arose an urgent demand that Welsh should be used as a medium of instruction in day-schools. Discussion centred round the question whether the elementary schools should be first Welsh and afterwards bilingual. The National Society spared no efforts to discourage the use of Welsh and to discountenance the bilingual system which had proved so great a success under Griffith Jones and Thomas Charles.

**Bilingualism in Wales.** The upper and educated classes universally spoke English, and this naturally isolated them from the great body of Welsh people, who spoke and understood Welsh alone.

The most ardent desire was felt by the industrial classes to learn English. This is convincingly shown by their efforts, in spite of poverty, to establish English schools. Unfortunately, these schools, through the inefficiency of the teachers, the lack of books and apparatus, poor accommodation and the failure to grasp the problem of bilingualism, proved almost worthless. Down to 1847 State aid was limited to schools founded by the British and Foreign and the National Societies. Subsequently State aid was extended to Wesleyan and Roman Catholic schools.

The Government granted in 1849 a certificate to teachers showing proficiency in Welsh, and

also an annual sum of money to all who held the certificate, showing that the value of the native language in day-schools was beginning to be recognized. This grant was withdrawn in 1862. The Elementary Education Act of 1870 was essentially an Act of compromise. It was only in Wales that the School Boards availed themselves, to any extent, of the Cowper-Temple Clause (*q.v.*), and prohibited religious instruction in their schools.

The most striking phenomenon in modern Wales has been the growth of a strong national sentiment which demands special recognition of the Principality's claims by the Imperial Parliament. Wales is essentially a bilingual country. Its enthusiastic spirit of nationalism, amongst all classes and sects of Welsh society at the present day, may be gauged by the great meetings of the National Eisteddfod, held annually at some important centre in North, Mid and South Wales alternately.

The bilingual movement in day-schools, which had its origin generations before, took on a new phase as a result of a Paper read before the Honourable Society of Cymmrodorion in London, "on the teaching of Welsh in elementary schools in Welsh-speaking districts," in 1882. The Cymmrodorion made, in 1884, a systematic effort to cope with the problem of bilingualism. Through the instrumentality of Mr. Dan. Isaac Davies, B.Sc., H.M. Sub-Inspector of Schools, the social and official recognition of Welsh as a medium of instruction and a subject of study was recognized by the State. The *Education Code* for 1884 asserts that, in districts where Welsh is spoken, the intelligence of the pupils examined in elementary school or class subjects might be tested by allowing them to explain in Welsh the meaning of passages read. It further stated that it was advisable to teach the reading and writing of the Welsh language as a specific subject, if suitable books were prepared. In the 1886 *Code*, Welsh was included as (1) a specific subject; (2) a class subject; (3) a subject for "grant" in night schools. The "Society for utilizing the Welsh language" (The "Welsh Language Society" of to-day), presented to the Royal Commission on Elementary Education a memorial full of incontestable facts and arguments in favour of the utilization of Welsh in the system of Welsh education.

The Report of the Commission advised: (1) that Welsh should be allowed to be taken as a specific subject and so recognized in the Code; (2) the adoption of an optional scheme for English as a class subject, suitable to the special needs of Welsh districts, such scheme being founded on the principle of substituting a graduated system of translation from Welsh into English for the existing requirements in English Grammar; (3) the inclusion of Welsh among the languages for Queen's Scholarships and Certificates of Merit.

The Education Department for many years ignored Welsh, and the fact that Wales required essentially different treatment at their hands from England. The subject of bilingualism in Wales would probably have escaped the notice of the Royal Commission, had not Mr. Henry Richard, M.P. for Merthyr Tydfil, secured its insertion in the syllabus of points of inquiry.

The *New Code*, 1889, gave the option to the managers of elementary schools in Wales of having Welsh taught. Manuals written in Welsh upon all class subjects multiplied, and their use greatly increased. (See also BILINGUALISM.)

**Recent Developments.** The Education Act of 1899 (*q.v.*) abolished the office of Vice-President of the Council of Education. The Department of Science and Art was united with the Education Department in one central office, under the title of Board of Education, with a President and Parliamentary Secretary, and the powers of the Charity Commissioners, in relation to educational endowments, were transferred to the Board.

The Act of 1902 (*q.v.*) aroused the hostility of Nonconformists, who objected to what they considered the subsidizing of denominational instruction from the rates. Many Nonconformist ratepayers refused to pay the Education rate from conscientious motives, and allowed themselves to be subjected to "distraint" rather than pay it. (See NONCONFORMIST GRIEVANCES.) The schools in the rural districts of Wales were commonly Anglican, the population Nonconformist; hence difficulties were experienced in the administration of the Act through the hostile attitude of the county authorities. To meet this defect, the Local Education (Local Authorities Default) Act, 1904, was passed, empowering the Board of Education, in case of default by the local authorities, to make payments direct to the managers of a school, and deduct the amount paid from the local parliamentary grant. The old Higher Grade Schools were mostly converted into Municipal Secondary Schools under this Act.

Subsequently provision was made in the *Code* for higher elementary schools of a specialized and technical type, intended for industrial districts. A new type of higher elementary school was sanctioned for children over 12 years of age, in which the work of the public elementary school was developed, and special instruction bearing on the future occupations of the pupils was given.

A Welsh department of the Board of Education was created in 1907, and the claims of the Welsh language and literature in the schools of Wales were fully recognized in the *Code*. The Welsh language is now taught both as a subject and as a medium of instruction in the schools of almost every county in Wales, and at least 50 per cent. of the pupils are taking advantage of this concession. It is now permissible to teach any of the school subjects, such as history, geography, nature study, and music, in Welsh. Every encouragement is given by the Board to all Welsh teachers who endeavour to realize the educational value of the Welsh language and its literature.

H. WILLIAMS.

**WALES, RURAL SCHOOLS IN.**—These are, as a rule, smaller and more isolated than similar schools in England. The rural school occupies a unique position inasmuch as, to the great majority of the children, English is a foreign tongue. If the commission of 1846, which condemned the Welsh rural schools in such emphatic terms (see WALES, ELEMENTARY EDUCATION IN) could revisit them to-day, they would, doubtless, be considerably astonished at the improvement that has taken place. The dilapidated, badly ventilated, ill-arranged buildings which moved them to such bitter sarcasm have given place, almost everywhere, to comfortably warmed, well-aired, commodious modern schools.

The number of scholars in the average Welsh rural school is below 100; in the county of Cardigan, out of 113 departments only 24 have an average

exceeding 100; in 50 schools in the same county the average attendance is less than 50. Many of the schools are several miles from a railway station, and the lonely teacher is far removed from congenial intellectual companionship. Yet he throws himself whole-heartedly into his work. His school is generally bright and cheerful; flowers and ferns adorn the window-sills; framed engravings hang upon the walls, and, very often, a piano—purchased by means of school concerts or other entertainments—and a library of well-selected English and Welsh books add to the amenities of school life. The school garden, with trees and shrubs planted round the building, ivy and other creepers growing on the walls, and gay flowers in neatly kept borders, often sets an example in horticultural taste to the neighbourhood. Nature study is eagerly taken up, and the children delight in bringing botanical specimens for their teacher to name and classify.

The number of scholars who proceed from the rural council schools to the county schools and subsequently becoming students of the university colleges of Wales, enter the ranks of the medical, legal, clerical, scholastic and other professions, goes far to prove that the so-called bilingual difficulty (see BILINGUALISM) is not a hindrance but rather a help to the young Welshman.

**The Two Languages.** On entering the school, as an infant, English is to the child as much a foreign tongue as French would be to an English child. Since the absurd custom of prohibiting the Welsh language in schools was abolished, some thirty years or so ago, Welsh has been the chief means of instruction till the child reaches the second standard. He reads in Welsh, and the object lessons and kindergarten work are given through the medium of Welsh. In the higher divisions of the Infant department and the lower standards, English is taught by means of the "Direct Method," and it is often surprising to find how quickly, and with what facility, the little ones will describe in simple but correct English the various objects and pictures which are used as aids in the oral English lesson. In all the standards Welsh books are read, and in many counties the education authorities have very wisely requested the teachers to include Welsh composition, dictation, letter-writing and the study of selections of Welsh poetry in the curriculum. English oral composition and translation from Welsh to English are often found helpful in acquiring a good knowledge of the latter language. Since the saner plan of acknowledging and utilizing the Welsh language has come into vogue, the much-bemoaned "Welsh Difficulty" has almost entirely disappeared.

The mission of the Welsh teacher is to restore the old language of Wales to its legitimate position in the school, and to teach the Welsh child to be proud of his language and its literature. The knowledge of two languages is well known to be of the greatest help in acquiring that of a third and even a fourth, and there is no reason why Wales should not occupy a similar position in the British Empire to that which Switzerland holds in Europe. The Welsh bilingual child easily learns a third language, and, properly directed, should in the future secure many of the good linguistic posts in the British commercial world now occupied by foreigners.

**The Curriculum.** History and geography are favourite subjects, especially when taught in the conversational style; and the composition exercises,

written in English upon the lesson afterwards, are often very creditable. In connection with the history lesson, interesting excursions are sometimes made to places of historic importance in the neighbourhood of the school. The children are very keen on these outings, and, when the distance is too great to walk, they very willingly save a few pence to pay for their share in hiring a conveyance. The vivid impression made upon the child's mind by such visits will probably never be effaced, and will materially aid in fostering a desire for a more thorough study of the history of the country in future years. (See *SCHOOL JOURNEYS*.) The celebration of St. David's Day (*q.v.*) is very generally observed in our schools, and the recent departure of the Welsh Department of the Board of Education in officially countenancing and encouraging the celebration has given a great impetus to the movement. Before the 1st of March, the Welsh Department now issue a little brochure in Welsh for the aid and guidance of the teachers. That for 1915 was extremely interesting, most artistically illustrated and printed, and of considerable literary value. On that occasion the editor was Mr. Alfred T. Davies, Secretary of the Department. The 1st of March being thus set apart as a national festival, the time table is suspended and a special programme arranged for the day, consisting of Welsh songs and recitations, and addresses by the teachers on famous Welshmen, *e.g.* St. David, Owen Glyndwr, Sir Thomas Picton, *etc.*; *tableaux vivants* representing stirring events in Welsh History are also arranged, trees are planted in the playground to commemorate the day, the school is appropriately decorated for the occasion, and, of course, the leek and the daffodil are never forgotten. A not uninteresting suggestion for St. David's Day might be the collection of Welsh curiosities in the neighbourhood; these would in all probability be readily lent or given, and might form the nucleus of a school museum.

**Evening Schools.** The exigencies of agriculture often requiring late working hours, and the consequent lassitude ensuing, together with the remoteness of the farms from the school, have militated very much against the success of the evening continuation school in rural Wales. In some districts much benefit has resulted from the establishment of debating societies and reading circles by the teachers for their former scholars—even dramatic societies have been attempted, and have attained a considerable measure of success. The more elastic rules and regulations of these societies as to punctuality and regularity of attendance suit the circumstances of the young people, who feel themselves more free and independent and in a more congenial and homelike atmosphere than that of an ordinary evening class, under the administration and control of the Education Authority. With a little encouragement and sympathetic assistance, these societies might prove of great utility in many districts. Old scholars' reunions, annual suppers—say on St. David's Day or New Year's Day—and other social gatherings all help to form a very desirable *esprit de corps*, strengthen the tie between the teacher and his former pupils, and tend to alleviate the tedium of long winter evenings in the country.

**Special Difficulties.** Irregular attendance is one of the chief difficulties with which the teacher has to contend, but, considering the humid climate of Wales, and the fact that many children have

to walk two or three miles to school over rough, unsheltered, mountain roads, it is not surprising that the percentage of attendances is somewhat low. Another difficulty is the overcrowded curriculum. It might prove beneficial if a small committee, consisting of the local Government Inspector, the Director of Education for the Local Authority, and a few experienced teachers were appointed for each county. This committee might draw up a curriculum, suited to the needs of the district, and select text-books for their schools, with the sanction of the County Education Committee. Unsuitable subjects could then be eliminated, and others added from time to time as circumstances might make necessary. Perhaps the third great obstacle to the complete success of rural Welsh schools is the numerically inadequate and constantly changing staff. Since the old pupil teacher system was abolished, and the schools came to a great extent to be staffed with young ex-students from the county schools, the difficulty has been rather intensified than diminished. In several counties the Education Authorities have made very laudable efforts to improve both the quantity and the quality of the rural school staff, but so much still remains to be done in order that the staff of the schools may be brought up to a satisfactory standard, that, whether the pupil teacher system, in a modified form, might not beneficially be re-introduced is an interesting question for the consideration of all who are concerned with the welfare of Welsh rural education.

H. H. H.

**WALES, THE UNIVERSITY OF.**—The Act of Uniformity of 1662 drove out of the Established Church a number of able and learned men, who helped to produce among the Nonconformists the love of learning and respect for learned men which has remained one of their best characteristics; and the opening in 1663 of the Academy at Brynlywarch by Samuel Jones, one of the ejected clergy, marks the first rise of collegiate institutions within Wales. (See *ACADEMIES*.) This Academy was removed to Carmarthen, and still exists there as the Presbyterian College. From it there branched off the Independent Academy which, after various migrations to places in North as well as in South Wales, retains its identity in the present Memorial College, Brecon. Both these institutions have a record of service to the cause of culture. Out of Carmarthen arose, in the latter part of the eighteenth century, preparatory schools conducted by men of individuality and learning, the first and greatest being D. Dafis (1743-1826) of Castell Hywel, in Cardiganshire, who carried on his famous school at that place for a long series of years, and there educated some of the leaders of Welsh life in the early Victorian period. Of his pupils, Dr. Phillips carried on the succession in his school at Neuaddlwyd, near Aberayron, and Dr. William Davies, at Ffrwdvale, in Carmarthenshire. The demand for educated ministers to work in Wales was the practical motive in the educational activity of this period. It was felt not less in the Established Church than among Nonconformists, for many of the grammar schools had sunk into a state of neglect and torpor, and the supply of Welsh-speaking clergy trained in them, and subsequently at Oxford and Cambridge, was nothing like equal to the need. Hence, about the same time as the rise of the Nonconformist schools, there arose in the county

of Cardigan two famous Church schools of private establishment — the school of Ystradmeurig, founded in 1774 by Edward Richard, and the school at Lampeter, opened by the Rev. Eliezer Williams in 1806. These schools were licensed to prepare men for ordination, and retained this privilege until the establishment in 1828 of St. David's College, Lampeter. Ystradmeurig, for many years, maintained a high standard, and drew pupils from all parts of Wales, including some who became poets like the founder of the school, and many who otherwise attained distinction and influence. Many of those who were educated in these schools and licensed direct to the ministry, like Griffith Jones of Llanddowror, who was educated at Carmarthen Grammar School and received no University education, were men of eminent gifts and patriotic zeal whose contributions form a valuable element in Welsh literature.

This activity was confined to South Wales, but it produced men who became pioneers of advance in the North. The Rev. Thomas Charles was for a time at the Carmarthen College before he went to Jesus College, and the Rev. George Lewis, also trained at Carmarthen, became the head of the Independent College, which was then in North Wales, and by his ministry and his writings had much influence on his denomination and on the religious thought of the time. The subsequent stages of the history of the Welsh Nonconformist Colleges are of equal interest as regards both their specific functions and their influence on the beginnings of university education, to which they are now related as institutions recognized for the training of graduates of the University of Wales for the post-graduate degree of B.D.

**The First Chartered College.** The opening years of the nineteenth century saw the culmination of a literary and educational as well as religious revival in Wales, the full fruition of which was checked by the Napoleonic wars and the long period of social and economic stress and upheaval which followed. The vicissitudes of the time did not prevent the accomplishment of one far-reaching project by Bishop Burgess of St. David's, who, in 1803, undertook the task of "founding a College in Wales for the reception and education of persons destined for Holy Orders." The result was the erection of St. David's College, Lampeter, which was completed in 1827. In 1828 the College was incorporated by Royal Charter, the first collegiate charter granted to Wales.

**A New Conception of Education.** The great revival of religion, which had begun in the latter half of the eighteenth century, did not abate its intensity until it imbued the whole people with a conviction of the reality of unseen things which entirely changed their interpretation of life. The new interpretation consisted in a revelation of the worth of the renewed individual, so that while proclaiming equal brotherhood it emphasized the function of personal leadership and initiative. To those who passed through these experiences the plane of character and effort was indescribably elevated; the very hills and valleys of their country seemed very near heaven. And, however deeply drawn in the first glow of fervour the line may have been between the spiritual and the secular, lest the new life should suffer loss of concentration or of purity by contact with secondary interests, the new principles themselves contained the remedy for such exclusiveness, and have from

that time to the present gradually asserted their intrinsic richness as co-extensive with life in its fullness. Out of the one-sided efforts of conflicting interests and parties to meet the exigencies which they encountered in working on their own lines, and out of educational reforms projected into Wales from the outside without knowledge of her special conditions, there gradually shaped itself in the nineteenth century a conception of education wider than any sect or party, and at the same time distinctively Welsh in spirit and aim. That conception has been embodied in a system and has evoked for that end the co-operation of the whole community. The demand for a common ground in education, at first a negative attitude, arrived at in self-defence, proved eventually the starting-point of a new conception, calling attention to its inner content as a matter of intrinsic moment for the community. The marks of the struggle are still visible in the primary school system and in the higher institutions. The charters of the University Colleges represent the balanced loss and gain. On the one hand, they exclude theology; on the other, they embody the many-sided conception of education as a broadly human interest, which in Wales was purchased at the cost of this formula of exclusion. The university charter is more comprehensive than the collegiate ones. As regards its relation to the constituent colleges, it repeats the formula "except theology," but it calls to its aid in this department the institutions which the religious denominations have founded for themselves, and provides in its calendar as the goal of their endeavour a post-graduate scheme of theological study which does not lack in scope or in detail, though it is the product of the joint labours of Churchmen and Nonconformists.

**The Training of Teachers.** In addition to the establishment of Day Schools, the promoters of Elementary Education applied themselves to the provision of training for teachers. The first actual step taken in this matter was the result of a Welsh Committee appointed by the Congregational Union in 1844, of which Mr. Henry Richard was the leading spirit. This committee worked on the principle of non-interference by the State in education, and succeeded in instituting a Normal School placed first at Brecon, then at Swansea, under the presidency of an excellent teacher, the late Dr. Evan Davies. He was a pupil of Davies of Ffrwdvale already referred to, and thus traces his lineage to the great teacher Dafis of Castell Hywel.

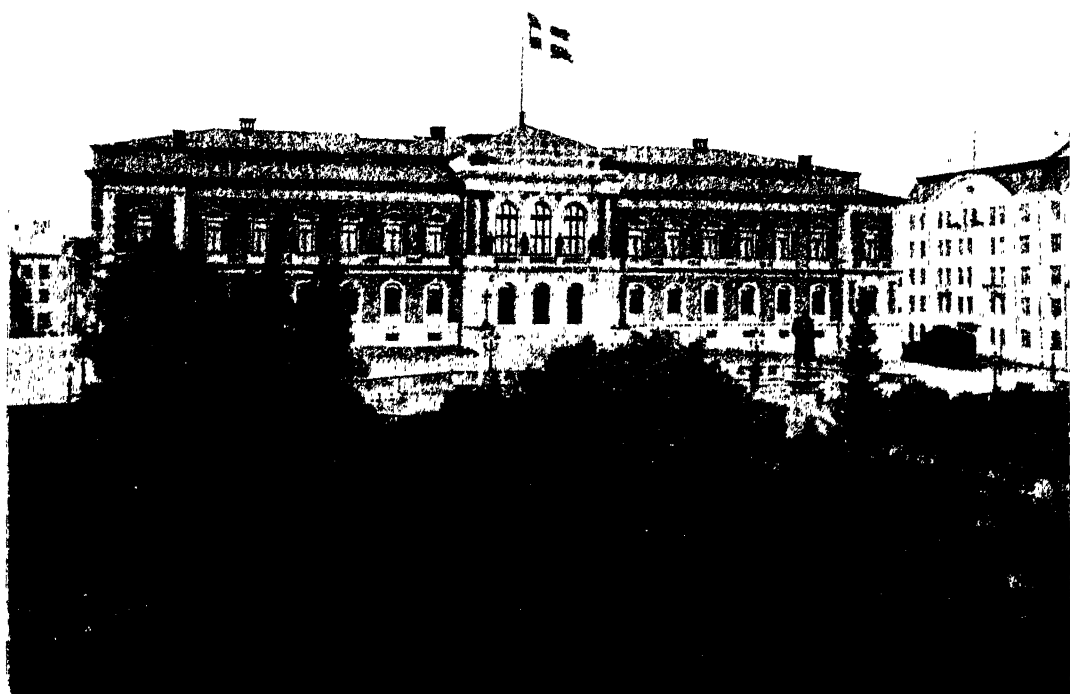
In 1846 were established the Welsh Education Committee appointed by the National Society for the special supervision of the Welsh work, and the Cambrian Education Society, the Welsh auxiliary of the British and Foreign School Society. The founder and first secretary of the Cambrian Education Society was Mr. Hugh Owen. Three years before, he had addressed a letter to the Welsh people, calling their attention to the system of British schools, of which there were then only two in North Wales, and detailing the steps to be taken to obtain Government aid towards school buildings. As a result of Mr. Owen's representations, the British and Foreign Society appointed as their agent for North Wales the Rev. John Phillips, who forthwith opened a campaign of public meetings to enlighten the public as to the existing needs and the provision for meeting them with such success that, in 1846, there were nearly 5,000 pupils in British schools in North Wales. In 1848 was



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established the Bangor Normal College, through the initiative of Mr. Owen, supplemented by the noble effort of Mr. Phillips, who raised a sum of £11,500 towards the building. This is the first occasion on which the people of Wales showed themselves capable of generous sacrifices towards a joint educational object. Under the same auspices was founded the Swansea Training College for Mistresses, the first Welsh Collegiate Institution for the education of women.

**The University Colleges.** As early as 1854, Mr. Owen had raised the question of colleges for Wales on the model of the Irish Queen's Colleges, but it was not until after the publication in 1862 of the letters of Dr. Nicholas on higher education in the *Cambrian Daily Leader* that the movement first began to take shape at a meeting in London in 1863, attended by Mr. Osborne Morgan, Mr. Morgan Lloyd, Dr. Nicholas, and Mr. Owen. The result was a circular setting forth the object in view, and a further larger meeting, presided over by Mr. W. Williams, M.P. for Lambeth, on 1st December, 1863. An executive committee was then appointed, which issued a detailed statement, in which the institution proposed to be established was described as "the University." It was not until October, 1872, after much earnest labour, that it was found possible to open the University College of Wales, Aberystwyth, and in that year Mr. Owen gave up his position at the Local Government Board in order to devote his whole time to the movement. He had learned from the incidents of the foundation of the Bangor Normal College the secret of success as a pioneer of education—that, side by side with his skilful organizing labour in London, it was essential to preserve intimate touch with the people of Wales. His presence is remembered as a sacred influence in the localities he visited throughout the country. The meetings were oftener small than crowded, but he met everywhere men ready to be touched with the fire that burned in his spirit. The names of the other workers whom he enlisted in the cause will be treasured by Wales in the roll of her benefactors. Those who once joined Mr. Owen never left the work. The late Lord Aberdare, who joined Mr. Owen at an early stage, became the first President of the College, and subsequently the first Chancellor of the University of Wales.

From 1872 to the date of the Departmental Committee in 1880 came years of strain and difficulty, during which not only the leaders but the people of Wales themselves touched the highest point they have ever reached in devotion to a great public cause. When the Report of the Committee, embodying the great proposals which have since become actual fact, was issued, it was found to speak in reluctant terms of disappointment with the results of the work of the University College. The chief point was that the number of students in attendance was only about sixty-five, but a sufficient vindication of the College was by this time secured in the distinctions attained and the work subsequently done by a large proportion of the students who were under instruction at that time. The College embodied for the first time the ideal of the educational unity of Wales, and of a broad culture—including the natural sciences—for all classes without distinction. The Report, "the Magna Carta of Education in Wales," resulted in the establishment and endowment, in 1883 and 1884 respectively, of the University College of

South Wales and Monmouthshire, and the University College of North Wales; but the course of events for the moment threatened the life of the mother college, which, moreover, in 1885 literally passed through what the Principal, Dr. Thomas Charles Edwards, called its "baptism of fire," and thus it was that his position, always one of stress and anxiety, called for a well-nigh heroic fortitude, in which he was not found lacking. The tried friends of the college and the voice of the people, expressed in the House of Commons in 1884 by Mr. Stuart Rendel, afterwards Lord Rendel, and successor of Lord Aberdare as President of the College, and ultimately the Government itself, came to the rescue, and thus what would have been an irreparable calamity was averted.

**Intermediate Education, and the University.** A further direct result of the Report of the Departmental Committee of 1880 was the Intermediate Education (Wales) Act of 1889, which brought about the immediate establishment of Intermediate or County Schools throughout Wales. In that year the three University Colleges, now rapidly developing both in the number of their students and in the scope of their work of a university level, presented a petition praying for a Royal Charter constituting them jointly into the University of Wales. That "a degree-granting University should be granted to Wales" was another of the recommendations of the Departmental Committee. The petitioners were invited by the Lord President of the Council to submit a draft charter, which was accordingly drawn up by a conference of thirty-two persons convened for the purpose, and consisting of representatives of the three colleges and of the Joint County Education Committees of Wales and Monmouthshire, newly established on the passing of the Intermediate Act. The draft charter, having been approved by the constituents of the conference and other public bodies, was duly presented. Its preparation, which was the first task undertaken on a national basis, evoked a high level of constructive skill and a spirit of co-operation, qualities which were equally shown by the University Court of 100 members, the first chartered national body in Wales, when it took up its work in 1894.

The University Charter, granted on 30th November, 1893, established a teaching University, carrying out its teaching function through its three constituent colleges, and was framed generally on the lines of the federal charter which had recently been granted to the Victoria University, but with differences adapted to the special circumstances and conditions of Wales. These differences consisted mainly in a very large extension of the representation given on the supreme body, the Court, to the new major local authorities, the County Councils of Wales and Monmouthshire, and in a provision expressed in the following terms in the Charter: "Due diligence and care shall be used by the Court to maintain an equal standard of attainment in all cases as a condition for each particular degree, but it shall not be required of the Court that the Schemes of Study approved by it for any degree shall be the same for all Constituent Colleges." (Art. xiv (5).) "Each Constituent College of the University shall be entitled to propose Schemes of Study and Examination for its own students as qualifications for the several initial degrees of the University. . . ." (Art. xviii (2).)

On 23rd June, 1896, the installation took place at Aberystwyth of King Edward VII, then Prince



of Wales, as Chancellor, on which occasion the distinctive character and aim of the University were expressed by the Chancellor in the following terms: "It will be our duty to bring still more closely home to the Welsh people the objects of higher education—on which their minds are already set—to offer additional incentives to the continuous pursuit of knowledge, and aim at developing those particular forms of mental activity which are most in harmony with the genius and instincts of Wales, and which will best enable its inhabitants to assist in furthering the interests of the civilized world. Its aim must be high, its vigilance keen, its care incessant."

In the words of the first Vice-Chancellor, Principal Viriamu Jones, on the same occasion, the University of Wales was declared to be "Wales itself organized for the guidance of learning, the pursuit of science, the promotion of research."

**Work and Progress.** In the period from the granting of the charter to the close of the academic year 1913-14 the number of graduates of the University was as follows: B.A., Pass: 811; Honours: 1,314; B.Sc., Pass: 426; Honours: 276; B.Mus., 7; LL.B., 4; B.D., 69; M.A. (by Dissertation), 187; M.Sc. (by Research), 32; LL.M., 1; M.Mus., 1; D.Sc., 13; D.Litt., 1; Post-graduate Certificate in Education, 73.

The Guild of Graduates, of which the first Warden was the late Sir O. M. Edwards, numbered in 1913-14 2,297 members. It is issuing series of Welsh Classics, of MSS. previously unedited, and of Researches by its members in Welsh History and Literature, and is organizing research in the sections of Dialects, Anthropology, and Place-names. A general list of the published Researches of its members was issued by the University in 1914.

In 1909, as the result of a joint application from the University and the Constituent Colleges, the Treasury grants to the latter were doubled and a grant was assigned to the University for Fellowships and Post-graduate Studentships. At the close of the next quinquennial period, in 1914, the Advisory Committee on University grants presented a report, in the course of which they paid emphatic tribute to the development of higher study and research since the receipt of the aid of the additional grants of 1909. The Lords of the Treasury, after consideration of this report and of that of a Departmental Committee appointed to consider a request for a further grant in aid of a National Medical School at Cardiff, issued in 1915 a Minute intimating their "general agreement with the recommendations contained in both reports that substantial additional sums should be provided by the Exchequer towards the maintenance of the Institutions concerned." After reference to certain criticisms on matters of university organization contained in the Reports, the Minute proceeded to intimate that the Lords of the Treasury "could only feel themselves justified in making substantial additional grants from the Exchequer if, as the result of a competent inquiry into the whole question of the constitution of the University of Wales, a reorganization would be effected which would meet the difficulties to which the reports have drawn attention." (*Return ordered by the House of Commons to be printed, 19th April, 1916. London: Eyre & Spottiswoode.*)

After conference with the University and the Colleges, the Lords of the Treasury in 1916 undertook to make forthwith a provisional allocation of additional grants, the University and the Colleges

having agreed to ask for the appointment of a Royal Commission to consider and report on the questions of university organization arising, and to accept such scheme of re-organization as the Government may approve based on the findings of the Commission. The Royal Commission was appointed in April, 1916, with Viscount Haldane of Cloan as Chairman, and entered immediately on its work.

The Report of the Royal Commission was issued early in 1918. It recommended that there should continue to be a single National University for Wales governed by a Court elected on a broad popular basis the functions of which should be deliberative, legislative and ceremonial, and by a Council which should be the executive and administrative authority of the University. These two bodies should be advised and assisted by an Academic Board, and by certain other bodies constituted for the promotion of special departments of study and research. The new Court which consists of about 260 persons, should act as a Parliament of Higher Education, and its main function should be to lay down the broad lines of University policy to be worked out by its executive, the University Council. Other recommendations were also made as to the conduct of examinations, the election of Heads of Departments, the institution of a School of Medicine at Cardiff, the recognition of Swansea Technical College as a constituent College of the University, and the organization of a Board of Faculty of Technology.

With regard to new developments, the Commission urged the formation of a University Board of Celtic Studies, a National Council of Music, a University Extension Board for the furtherance of extra-mural teaching, a University Press, and the removal of all restrictions as to the teaching of Theology in the Colleges. In order to provide further funds, it was suggested that a special rate should be levied on the whole of Wales to be supplemented by an equivalent contribution from Imperial Funds.

Shortly after the publication of the report, representatives of the Welsh County Councils met and agreed to recommend their Councils to levy an annual rate of one penny in the pound towards the support of the University. The promise of an equivalent sum has since been made by the Treasury, and it is calculated that the total sum available from both sources will amount to about £100,000 per annum. A Supplemental Charter was thereupon drawn up and approved by the Privy Council, and the first meeting of the reconstituted Court was held on 25th November, 1920. The most striking feature of the New Constitution is that both the Court and Council are comprised of an equal number of representatives of County and Borough Councils on the one hand, and of representatives of the University Colleges and other Educational bodies on the other hand. The New University is, therefore, a thoroughly democratic body, deriving a great part of its financial support from the ratepayers, and entrusting its government very largely to their representatives.

T. F. R.

J. H. DAVIS.

**WALLACE, ALFRED RUSSEL** (1823-1913).—He was born in Monmouthshire, and, after being trained as a land surveyor, gave up that profession in order to travel and study Nature. In 1848 he visited the Amazon, and published his travels and

a description of the palm trees of the region. From 1854 to 1862 he explored the Malay Islands, and published *The Malay Archipelago* in 1869, as well as many contributions to the publications of the learned societies of London. In 1876 he published *The Geographical Distribution of Animals*, and in the same year he was the president of the Biological Section of the British Association at the Glasgow meeting. His *Tropical Nature* (1878) described equatorial climate and natural scenery, and gave his views on colours of natural objects, geographical distribution of plants and animals, and sexual selection. In 1883 he published *Island Life*, applying his principles of geographical distribution to the plants and animals of the chief islands of the globe. In later years, Wallace took up social problems, and in 1882 published *Land Nationalisation*, proposing a scheme of occupying ownership under the State as a remedy for existing evils in the English land system. To advocate his views, a Land Nationalization Society was formed, with Wallace as its first president. His most important scientific work was *Darwinism* (1889), giving a popular account of the theory of variation and natural selection.

**WALLIS, JOHN, D.D.** (1616–1703).—Savilian Professor of Mathematics at Oxford, was a typical son of his energetic age—a student of Hebrew and Arabic, a theologian and a phonetician, as well as a celebrated mathematician and a founder of the Royal Society. His skill in deciphering the code messages of the Royalists gained him preferment from Parliament; but he was a man of moderate views, and used his formidable gift with such restraint that his position was not imperilled at the Restoration. He has left an interesting account of his education (citations are given in Adamson's *Short History of Education*), from which we learn that he read mathematics privately both before going to Cambridge and after his admission to Emanuel College.

Wallis's discursive *Treatise of Algebra* (finished 1676, published 1685) is perhaps his best known work, but the *Arithmetica Infinitorum* (1655) was far more original and important. In effect a treatise on what is now called the integral calculus, it proved highly suggestive to the genius of Newton as well as to many continental mathematicians. In substance it was an attempt to discover general formulae for evaluating the lengths of curves and the areas and volumes of typical figures. The method, suggested by Cavalieri's *Geometria Indivisibilium Continuum* (1635), may be understood from the following example.

Within a rectangle,  $p$  units high and  $(p-1)^2$  units wide, place side by side columns of equal width and of heights  $0^2, 1^2, 2^2, \dots, (p-1)^2$ , and consider the ratio of their total area to that of the containing rectangle. Examination, in succession, of the cases in which  $p = 2, 3, 4$ , etc., suggests that the ratio can always be expressed as  $1/3 + 1/6(p-1)$ . Now if the columns become extremely numerous and narrow, the broken line formed by their tops approaches a parabolic arc while the ratio simultaneously approaches the limiting value  $1/3$ . Thus we conclude that the area between a parabolic arc, the tangent at its vertex, and any perpendicular thereto is one-third of the rectangle contained by the tangent and that perpendicular. Calling the segment of the tangent  $x$ , the height of the perpendicular is  $x^2$ , and the foregoing

conclusion may be expressed in modern idiom by the statement that the integral of  $x^2 dx$  is  $\frac{1}{3}x^3$ .

As the result of examining in this way a number of instances in which  $n = 2, 3, 4, 5$ , etc., Wallis reached by induction the rule  $x^{n-1} \cdot dx = x^n/n$ , which is of such fundamental importance in the integral calculus, and in an attempt to make it as general as possible was led to the fruitful and typically modern invention of fractional and negative indices.

In the course of his work Wallis discovered his famous (factorial) expression for  $\pi$ —the first reached by an analytic method as distinguished from the geometrical method of Archimedes. Apart from the intrinsic interest of his formula, the inquiry has great historic importance; for it was in reconsidering an incidental problem which had baffled Wallis that Newton lighted upon the expansion-formula so well known to elementary students as the binomial theorem.

There can be no question that Wallis's methods, which involve only simple arithmetic, are still of great value as an introduction to the integral calculus, and that they could be used with great profit in schools. T. P. N.

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**WARDEN.**—The head of a college or school. This title is held by the heads of All Souls', Merton, New, Wadham, and Keble Colleges (Oxford); but is not in use at any of the Cambridge colleges. In some theological colleges the head bears this title.

**WARRINGTON TRAINING COLLEGE.**—This was founded in 1844 to train women teachers in and for the diocese of Chester, which now includes the dioceses of Chester, Manchester, and Liverpool. The founder was the Hon. and Rev. Horace Powys, then Rector of Warrington, and afterwards Bishop of Sodor and Man. Warrington College was the first provincial training institution for teachers, and now ranks as one of the largest, providing accommodation for 147 resident and 13 day students. The college is situated on the outskirts of the town, and stands in grounds which have an area of 30 acres. Originally the number of students admitted was very small, and the college has grown by slow degrees to its present dimensions. In 1894, a mansion, known as Fairfield Hall, standing in its own grounds near the college, was taken to provide additional accommodation.

The educational work of the college is carried on in connection with the University of Liverpool, and that University conducts the final examination of the students. Nearly all the students take the Archbishop's examination in religious knowledge, and, on leaving, the majority find places in the schools of Lancashire and neighbouring counties.

The council of the college is formed of the Bishops, Archdeacons, and Chancellors of the dioceses of Chester, Manchester, and Liverpool; the Deans of Chester and Manchester; together with thirty other members appointed by the three Diocesan Boards of Education.

It is intended, in the near future, to remove the

college in order that students may have the opportunity of obtaining a University Degree. An excellent site has been obtained in the outskirts of Liverpool, where the new college will be built.

**WARSAW, THE UNIVERSITY OF.**—First founded in 1816, was closed in 1832 and not re-opened until after the Polish insurrection of 1861, which led also to the temporary closing of the University of Petrograd. In 1863, the University Statute re-established its university councils, but repressive measures prevented the development of the tendency towards decentralization, and in 1869 the Warsaw University was re-opened as a Russian institution in which all teaching was carried on in the Russian language. The statute of 1884 deprived the University of all authority, and the measures taken to prevent the spread of revolutionary ideas among students robbed it of all intellectual life and effectually checked its progress. In 1905 the Government of the University was again restored to its council. Warsaw University enjoys a high reputation for its medical school, has a fine library of half a million volumes, valuable natural history collections, botanical gardens, and an astronomical observatory. (See also RUSSIAN UNIVERSITIES.)

**WARSPITE, THE TRAINING SHIP.**—(See MERCANTILE MARINE, TRAINING FOR THE.)

**WARWICK SCHOOL.**—Warwick School is one of the four English schools known to have existed before the Norman conquest. It certainly dates back to the reign of Edward the Confessor, and may even have been founded about 914, when Ethelfleda threw up the *burgh* where the castle now stands. It was originally in the hands of the Canons of the Church of All Saints, but in 1123 that church was united with the "Church of St. Mary of Warwick." It consisted of a "School of Grammar" and a "School of Song," roughly corresponding to the modern division into upper and lower School. A distinguished early pupil was John Rous, chantry priest of Guy's Cliffe and antiquary, who died in 1491. In his time, he tells us, the school was conducted in the disused church of St. John in the market-place. When St. Mary's ceased to be a collegiate church the school was dissolved; the Warwick Guild then re-opened it in the Guildhall—now the Leicester Hospital. Henry VIII re-founded it in 1545, since when it has been known as the King's School. In 1595 the master was the famous John Owen, who wrote four books of *Epigrams*, and was buried in Old St. Paul's. Among his pupils were two well-known men: Sir John Puckering, Keeper of the Great Seal, and Sir John Ley, sub-dean of Chester. In 1694 a great fire destroyed a considerable portion of the town, including the old school buildings, and the house of the vicars choral became the new school. There it remained until fine, new modern buildings were erected at a cost of more than £13,000. In the eighteenth and early nineteenth centuries, in common with most other endowed schools, it fell on evil days, its numbers falling sometimes as low as two. A new scheme revived its fortunes in 1875, when a middle school was established for the ordinary needs of local boys; an amalgamation, however, took place in 1906. There are now about 350 boys in the school. In addition to classrooms, lecture rooms, etc., the buildings comprise a chapel, science laboratories, workshop, gymnasium, five courts, sanatorium, music rooms, and bath rooms, and there are

14 acres of playing fields. The curriculum is that of the smaller first-grade public schools, the leaving age being 19. There are four entrance scholarships awarded every year, and a leaving exhibition of £50 for four years falls vacant annually also. In all, the endowment of the school is about £800 a year.

**WASE, CHRISTOPHER** (1625-1690).—He was educated at Eton and King's College (Cambridge), proceeding to M.A. in 1655; and was appointed head master of Dedham Royal Free School in the same year. From 1662 to 1668 he was head master of Tonbridge School, and in 1671 he became superior Beadle-at-Law and Printer to the University of Oxford. He gained a reputation as an eminent scholar and "philologist," and as early as 1647 the head master of Eton published Wase's works in Greek. He dedicated his edition of the *Electra* of Sophocles to the Princess Elizabeth as a token of loyalty (1649), and suffered loss of his Fellowship in consequence. His other writings include a Latin-English dictionary, and a treatise (1678) urging an increase in the number of schools and the claims of scholars on the wealthy.

**WASHINGTON, GEORGE** (1732-1799).—He was the first President of the United States (c. 1789, for eight years). Like Oliver Cromwell, he seemed a man born for a crisis in human affairs, and showed himself splendid in all the emergencies of war and of peace. Thus, after the great war of American Independence, he devoted himself to reforms in agriculture and in navigation. When the Legislature of Virginia passed an Act to vest in him 150 valuable shares in the navigation of the rivers James and Potomac, he accepted them only so as to use them to help found a seminary of learning in the vicinity of each river. He compiled a book on manners, entitled *Rules of Civility and Decent Behaviour in Company and Conversation*, apparently at the time of or soon after (c. 1745) attending school in Fredericksburg, Virginia, the head master of which was the Rev. James Marye, a Frenchman. Mr. Moncure D. Conway traced these rules of behaviour to the Jesuit manual of the College of La Flèche (1599), translated from French into Latin by Father Périn in 1617. This was translated into English by Francis Hawkins in 1640, said to have been done at 8 years of age, though it seems probable that Washington's *Rules* came from his French teacher, based on the original French, rather than from the English translation.

Mr. Conway states that in this one colonial village school of the French Protestant, James Marye, the ex-Jesuit French scholar, three American Presidents were pupils—Washington, Madison, and Monroe.

F. W.

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CONWAY, MONCURE D. *George Washington's Rules of Civility traced to their Sources and Restored.* (London, 1890.)

**WATER-POLO.**—This sport, recognized in 1884 by the Amateur Swimming Association, has become very popular, and annual international matches in the United Kingdom have been played for many years. Games are also played, generally under English rules, on the Continent and in several British dominions. The game is played with an Association football in a bath, or in open water, and is a valuable form of training for the players in endurance and skill as swimmers. Each team

consists of seven players, three playing forward, one at half-back, two at back, and one in goal. The goals may be from 19 to 30 yds. apart, and the field of play must not exceed 20 yds. in width. The goal posts must be 10 ft. apart and in water over 5 ft. deep—the cross-bar must be 3 ft. above the surface. In shallower water, the cross-bar must be 8 ft. from the bottom. The referee starts the game by throwing the ball into the centre of the field of play, while each team of players is lined up at its own end. The object of each team is to put the ball into its opponents' goal, and the ball may be thrown or struck in any direction, but with one hand only. The duration of the game is fourteen minutes (divided into two periods) each way.

**WATTS, ISAAC** (1664–1748).—Congregational minister, author of *Divine and Moral Songs* (hymns and poems for children), 1715, was educated at Stoke Newington Academy, and became a typical Nonconformist minister of culture. He wrote *An Essay towards the Encouragement of Charity Schools*, 1728, an urgent plea for education—on philanthropic grounds—made to the Dissenters to establish schools for the poor. He protests against allowing the poor to be without the opportunities of learning. He pleads that “not the meanest figure of mankind in Great Britain” should be without the knowledge to read his Bible. In *A Discourse on the Education of Children and Youth*, 2nd Ed., 1769, he warmly advocates the education of girls, and expresses the wish that there were more working occupations for women and better training for them. He even suggests that only women should be allowed to engage in the manufacture of garments worn by women. He asserts that reading, writing and casting up of figures are as needful for the one sex as the other, and the training should be thoroughly practical. Isaac Watts wrote on *The Art of Reading and Writing English*, with a variety of instructions for true spelling” (1721). He also wrote on Astronomy and Geography, *The Knowledge of the Heavens and the Earth made easy* (1726). But his reputation was especially made by his *Logic* (1725), based, as Samuel Johnson remarks, on Leclerc; and the supplementary volume on *The Improvement of the Mind* (1741), founded on Locke's *Conduct of the Understanding*. The latter work of Watts had great value as a practical treatise on self-education, dealing with the attainment and the communication of useful knowledge. Watts's treatise was composed from “observations on my own studies, on the temper and sentiments, the humour and conduct of other men in their pursuit of learning.” Watts deliberately includes women as interested in higher education.

Dr. Watts deserves recognition as an educationist, also as the writer of the *Divine and Moral Song for the use of Children* (c. 1715). Though eminently didactic and pietistic, they have appealed to children through each generation, and include the well-known lines beginning “How doth the little busy bee,” and “’Tis the voice of the sluggard.” F. W.

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WATSON, FOSTER. “Isaac Watts as an Educationist.” (*Gentleman's Magazine*, June, 1904.)

**WAUGH, REV. BENJAMIN.**—(See PREVENTION OF CRUELTY TO CHILDREN, THE NATIONAL SOCIETY FOR THE.)

**WAYNFLETE, WILLIAM OF.**—Son of Richard Patten (otherwise Barbour), took the name by which he is best known from his birthplace in Lincolnshire. Of his early years little is known, but he had probably won a reputation as scholar or teacher before he became master of the school at Winchester in 1429. There he remained till 1442, when he removed to Eton, where he is said to have acted for a time as master, but, as he was already Provost in September, 1443, his actual teaching work must have been mainly at Winchester. In 1447 he became Bishop of Winchester and held that See till his death in 1486.

**Foundation of Magdalen College.** During his long episcopate he had constantly in view the advancement of his plans for the foundation and improvement of the College of St. Mary Magdalen which he established in Oxford. This work, begun in 1448, took a new form in 1456, when his foundation was transferred to the site and its endowment increased by the property of the ancient Hospital of St. John Baptist. The fulfilment of his scheme was delayed by the disturbed conditions of the times; and it was not till 1480 that the buildings of the College were ready for occupation and its working regulated by a body of statutes. In these ordinances Waynflete followed to a great extent the model supplied by Wykeham's directions for New College (see WYKEHAM, WILLIAM), but he introduced some new features of importance. His seventy scholars were divided into two classes, forty being *Socii* or Fellows, and thirty junior scholars or “Demies,” with a lesser allowance and limited tenure. The “Demies,” chosen from parishes or counties where the College held property, were to study in the first place “grammar,” on the need for which, as a foundation of future study Waynflete specially insists. They might then proceed to study logic and sophistry, but some were to devote themselves to more literary studies with the aim of qualifying themselves for teaching. The Fellows, if not engaged in the study of theology, were to devote themselves to moral or natural philosophy: the study of civil or canon law, for which Wykeham made large provision, was to be pursued only by two or three, a like number being allowed to study medicine.

**Endowment of University Teaching.** The special importance given by Waynflete to the study of “grammar” was probably due to his own experience; that which he gave to theology and philosophy, while it appears from the first as a part of his scheme, was also due in part to the obligations undertaken in connection with the annexation of the hospital to the college. The provision made for teaching in all these subjects was a new and specially important feature of Waynflete's work. A master and an *ostiarus* were charged with the “grammar” teaching; and three readers were provided to lecture on theology, moral philosophy or metaphysics, and natural philosophy. The stipends of the grammar master and the readers were high, according to the standard of the time; the best available teachers were to be chosen, and their instruction was to be given gratuitously to all comers. They were, in fact, the first endowed teachers for the whole University. The early grammar masters did much to improve the methods and standard of instruction, and some of the most learned English scholars of the time were numbered among the early readers. The position which the College took in the history of the English Renaissance

as a home of the New Learning was due, in a large measure, to the wisdom of the founder and to his provision for securing the services of skilled and competent teaching alike for his own scholars and for the University at large. H. A. W.

**WEBBE, JOSEPH.**—A grammarian and physician; during the years 1612 to 1626 wrote in advocacy of a colloquial method of teaching languages, proposing to extend his system to classical tongues and to substitute it for the pedantic manner of grammatical study then in use. In 1623 he was teaching in London by his own method and, in a Petition to Parliament "with respect to teaching the Latin tongue," claimed to have the support of James I. In 1626 he dedicated to Charles I a work on Latin verse, and he also translated some of the best known epistles of Cicero.

**WEBER'S LAW.**—This law is the generalization of certain facts, relating to the intensity of physical stimuli and their correlated sensations, which have been observed in the discrimination of just perceptibly different sensations of the same kind. It was discovered by the physiologist E. H. Weber (1795–1878), who found, in experiments of weight lifting, that, where it was just possible to perceive a difference between 29 and 30 drams, so it was also just possible to perceive a difference between 29 and 30 ounces. He obtained similar data from experiments on visual and tactile appreciation of difference.

The law has been formulated in several ways. The first—that of Weber himself—states that the difference between the intensities of two stimuli correlated with two just perceptibly different sensations is a constant fraction of the intensity of the first stimulus. [ $\frac{\Delta S}{S} = C$ : where  $S$  represents the stimulus, and  $\Delta S$  the differential threshold, or minimal difference of intensity between two stimuli required in order that they should be appreciated as different.] This statement of the law includes all the observed facts, makes no assumptions, and is its simplest expression.

A second formulation of the law was framed by G. T. Fechner (1801–1887), who attempted by mathematical treatment to establish an exact relation between the sensations discriminated and their correlated physical stimuli—for Fechner, more exactly, the psychical and the psychophysical (or bodily) activities; which he conceived, after the fashion of Spinoza, as the two expressions of one and the same reality. It may be stated as follows: In order that the intensity of sensations in series should proceed in arithmetical order, the intensity of their correlated stimuli must proceed in geometrical order; or sensations are proportional to the logarithms of their stimuli. [ $\Sigma = c \log S$ : where  $\Sigma$  represents sensation and  $S$  stimulus.] Thus, to take the example of lifted weights, the series of stimuli in order would be 1 (where unity is a value of the stimulus, too small to have a correlated sensation),  $(\frac{8}{9})^1, \dots, (\frac{8}{9})^2, \dots, (\frac{8}{9})^n$ ; and the sensations 0, 1, 2,  $\dots, n$ .

Fechner's Formulation is open to criticism on several grounds. It gratuitously assumes that, since sensations are discriminable as different, they differ in arithmetical order. The data upon which the law is based warrant no such assumption. The subject of the experiments is not asked by how much his sensations differ, but merely if there is a

difference. Indeed, the former question would be impossible to answer.

Again, it raises a difficulty as to the meaning of  $\Sigma$  for the negative values of  $\log S$  from  $S = 1$  to  $S = 0$ —especially as Fechner held that  $S$  was "psychophysical" and not the intensity of the physical stimulus.

In the contrary supposition, the explanation might be in the physiological excitation produced by stimuli of values from 0 to 1, which undoubtedly could be operative upon the organism, and yet have no repercussion in consciousness.

Indeed, the law considered in all its implications appears to be concerned with the relation between stimulus and physiological organism, rather than between stimulus and consciousness, or organism and consciousness. The progressive increase in intensities of  $\Delta S$ , as  $S$  increases, would then be accounted for on some such ground as that of physiological instability, which a relatively low intensity of stimulation would disturb proportionately less than a higher one.

Weber's Law does not hold good in cases of very small, or very large, intensities of stimulation. With moderate intensities it has been found to hold in regard to muscular sense, pressure, visual and auditory discrimination: where  $\frac{\Delta S}{S}$  is roughly as follows: lifted weights,  $\frac{1}{30}$ ; digital pressure,  $\frac{1}{50}$ ; brightness,  $\frac{1}{100}$ ; noise,  $\frac{1}{3}$ . F. A.

**WEIERSTRASS.**—By far the greatest effect on the study of the theory of functions during the latter half of the nineteenth century was produced by the work of Riemann and Weierstrass. Riemann did not live very long, and, though his powerful and "intuitive" ideas, which can be traced back to Gauss (*q.v.*), and Cauchy (*q.v.*), were enormously influential in mathematics, it is the lectures of Karl Weierstrass (1815–1897) at Berlin which gave a lasting character to perhaps the most important school of mathematical thought—the strictly logical one—existing at the time. Weierstrass's published works were at first chiefly concerned with the investigation of the properties of Abelian functions; and his methods of dealing with these functions introduced mathematicians to a very high standard of rigour. His exposition of the general theory of "analytic functions," which served as a basis for this and many other researches, was known in its entirety only through his lectures. His fundamental conceptions had much in common with those of Lagrange's (*q.v.*) "analytic functions," but the whole theory was developed with a logical exactness which has become proverbial as "Weierstrass's rigour," and which has played a great part in the formation of the modern Logical School of Mathematics (*q.v.*). Weierstrass also made extremely valuable contributions to the theory of non-analytic functions and other branches of analysis, and his work was developed by a band of devoted pupils, among whom the most distinguished were Georg Cantor, Gustav Mittag-Leffler, and Sonia Kovalevskia (1850–1891). E. B. J.

**WELLINGTON COLLEGE.**—After the death of the great Duke of Wellington in 1852, among the many memorials founded from funds raised by public subscription was a great public school, designed in the first place for the sons of deceased officers, either in the King's Army or in that of the H.E.I.C.S. The royal charter incorporating the

institution is dated 13th December, 1853; a site was chosen four miles from Wokingham in Berkshire, and Queen Victoria laid the foundation-stone in 1856, and opened the building in 1859. There are ninety foundation scholars, who pay the nominal fee of £10 a year; besides these, non-foundations are admitted, a reduction of fees being granted to a limited number of officers' sons. There are at present more than 400 of these non-foundations in the school. The College contains ten "dormitories" or long galleries containing separate rooms or cubicles divided by partitions 8 ft high, each room having its own window and door. Each dormitory contains from thirty to thirty-nine rooms, and each pair of dormitories is in the charge of a senior assistant master, who acts as tutor. The names of the dormitories are drawn from modern military history: they are Anglesey, Beresford, Blücher, Combermere, Hardinge, Hill, Hopetoun, Lyndoch, Murray, and Orange. Every boy has a study and bedroom (combined) to himself. There are also four boarding-houses, each containing thirty-three rooms. The school has two sides, classical and mathematical, the latter including the classes for Woolwich and Sandhurst. The governors include our most distinguished generals; the president is the Duke of Connaught; and the Secretary of State for War is a governor *ex-officio*; thus the School has most intimate relations with the Army, and many of the boys enter the Service. The endowment is considerable, and provides numerous valuable prizes and scholarships, several derived from memorial funds and gifts. Thus, the Benson Scholarship was founded in memory of Edward White Benson, the first master, afterwards Archbishop of Canterbury; and the Earl of Derby's Gift is a prize for good conduct and industry valued at about £50, the interest on Lord Derby's profit from his "Translation of the Iliad," and presented to the school in 1865. Sons of fathers whose profession demands and secures sound health and vigorous physique, Wellington boys are especially distinguished on the football field and in the racquet and tennis courts. Their athletic record is surpassed by no other school.

#### WELSH CIRCULATING SCHOOLS.—(See CHARITY SCHOOLS.)

**WELSH EDUCATION IN THE SEVENTEENTH AND EIGHTEENTH CENTURIES.**—The Puritan John Penry had in 1587 appealed in vain to Queen and Parliament "on behalf of the country of Wales that some order may be taken for the preaching of the Gospel among these people." The Act of 1649 "for the better propagation of the Gospel in Wales" led to an extensive provision for this and for the educational needs, including a large number of free grammar schools in market-towns, such as that of Cardigan, giving an education preparatory to the universities.

**Cromwell's Projected University.** At the instance of a Welsh publicist, J. Lewis of Glasrugg, in 1656, Baxter was induced to approach Cromwell with the request for the foundation of a "College with academical privileges for Wales." In the course of the correspondence, Dr. John Ellis, referring to the financial support required, says: "And if you can go by contributions it would not be much for the thirteen counties." Baxter desired to place the College at Shrewsbury, others in some town in Wales. That the sympathy of the Protector was

likely to be with the petition is apparent from his general attitude towards university education. He assisted the Universities of Scotland and in the establishment of grammar schools in the Highlands, and provided for a new university at Durham for the northern counties. The Welsh scheme appears to have been carefully devised to avoid giving grounds for objection from the English universities, whose opposition to the scheme for a university at Durham prevented its accomplishment at that time. The Welsh project appears to have gone no further than the stage of preliminary negotiations. Charles Edwards, in his *Hanes v. Ffydd*, published in 1677, refers to the matter in these terms: "It would be no small help to our country if our leaders would raise therein a college or two to bring promising young men up in learning and good manners, in order to fit them, with the blessing of the Almighty, for the Gospel ministry or for civil office."

If Baxter failed to help Wales in this matter he accomplished much in collateral directions in co-operation with Stephen Hughes and other Welshmen, and by enlisting the aid of T. Gouge in the diffusion of cheap issues of the Welsh Scriptures and other books and in supporting schools in the Principality.

**Eighteenth Century Adult Education.** Later on, Welshmen like Sir J. Phillips, zealous for Wales, became founders or supporters of new societies, like the Society for Promoting Christian Knowledge, by means of which concerted action was organized for the objects in hand—the publication and diffusion of literature, the establishment of local libraries and the organization of adult schools, the circulating schools of Griffith Jones of Llanddowror, which developed on a well-nigh national scale, and the adult Sunday Schools founded in North Wales towards the close of the eighteenth century by T. Charles of Bala. The effect of these efforts was so great that in the course of the eighteenth century literature became the direct concern and pre-occupation of the people. Thus emerged some of the definitive features of Welsh higher education, dimly suggesting methods of organization which have now to be applied, if the features in question are to be perpetuated.

Writ large on the record of the past in Wales, and enforced alike by success and failure, is the need for collective action by the community in providing for itself an organized free adult education, such as the University Tutorial Classes of to-day. No less clearly indicated is the need of a free university education for those fitted to receive it, for careers of leadership, such as those of the clergyman or minister and the teacher, to which in our day is added a wide range of other services, the recruits of which also are in Wales mainly drawn from the body of the people.

The outcome of these social experiments was the advance of elements in apparent conflict but of fundamentally accordant purpose. While the need of training clergy continued, that of training ministers for the Nonconformist societies that were springing up on every hand increased, and called into being academies or seminaries for this purpose.

T. F. R.

#### WELSH EDUCATION UNDER THE TUDORS.—

The dissolution of the monasteries wrought a violent breach with the past, which involved not merely the monasteries but also the schools attached

to them, in some of which, as probably in those connected with the North Wales abbeys, a high level of scholarship was fostered. It may be that William Salesbury, Bishop Richard Davies, and Bishop Morgan, the translators of the New Testament and of the Bible into Welsh, were educated by monks or other teachers who had once belonged to these schools, and that they had thus already derived the foundation not only of their classical knowledge, but also of their not less scholarly knowledge of the native Welsh literature which fitted them for their future work. Their entry into the universities took place at a time which brought them under the highest influences that a university could exert on them and, through them, on their country.

**The First Printed Books.** The invention of printing had given a weapon to their hands of which they took far-reaching advantage, aided by the vision, which they had obtained at the university, of the new spirit of the Renaissance. "All the Welsh literature in the Welsh monasteries was in manuscript form. The printing press did practically nothing for Wales till 1546, when the first series of religious primers appeared" (D. R. Phillips, *The Monastic Libraries of Wales*). Salesbury, in the preface to the collection of Welsh proverbs, *Oll Synwyr Pen Kembero*, the first or second Welsh printed book, published not later than 1553, appealed to the Welsh reader who possessed any Welsh MS. books to report them to persons known "to be taking thought for fostering a patriotic zeal for that language. If you are not quick to repair and perfect this language before the present generation passes away, the work will then be too late. And if there be not learning, knowledge, wisdom and godliness in a language, wherein is it better than the chatter of wild birds or the roar of wild beasts? Get the Scriptures in your own language, as your happy ancestors the ancient British had them. The collection of Proverbs of Gruffudd Hiraethog now printed is to assist towards perfecting the language. Know for a surety that the learned among the ancient Britons laboured in the same task as Gruffudd Hiraethog of collecting and arranging the national proverbs, just as other learned teachers did who were brought together to frame the Laws of Hywel Dda." If Aberconwy and Strata Florida had obtained a charter as universities, they would probably have avoided dissolution, as Oxford and Cambridge and the Scottish Universities did, and kept their MSS., and probably also have possessed those dispersed after the dissolution of the other monasteries deposited in their libraries. Later on, Salesbury proceeds: "But Erasmus Roterodamus, the teacher most authoritative in all Christendom in our age or in many an age before, collected," referring to the *Adagia* of Erasmus, "not a thousand nor ten thousand, but a great array, of Greek and Latin proverbs, and compiled them into one book just as our bard has done here."

The passage shows that it was from Erasmus that Salesbury, who was at Oxford after Erasmus's visit to the two universities, and when the latter died in 1536, had derived the inspiration which informed his zeal for the vernacular and for translating the Scriptures into it. One may lay it down as a principle of Erasmus that the entry of a people into the main current of the Renaissance was conditional on the process being mediated through their own nationality and the language which is its

expression. From that time forward progress for Wales has depended on the interaction of contact with the main current of humanism, and a vivifying insight into the inheritance of its own past. The first and greatest manifestation of this principle is Bishop Morgan's Bible of 1588.

The Protestants had no monopoly of the patriotic Welsh awakening under the Tudors. One of its most genuine expressions was that which it found in the colony of Welsh Catholics in Italy. The *Grammar* published in Milan in 1567 by Dr. Grifflth Roberts contains a preface giving exquisite expression to his love of his country and its language.

In 1632 was published the Latin-Welsh Dictionary of Dr. John Davies of Mallwyd, containing a larger collection of *Adagia Britannica*. In his preface he refers to Salesbury's Dictionary of 1547, and other similar publications by Dr. W. Morgan (at whose feet as his Gamaliel the author is proud to have been educated); Dr. David Powel; Dr. John David Rees, a Doctor of Medicine of the University of Siena in Italy; Henry Perry; Henry Salisbury, Doctor of Medicine; and Thomas Williams, a physician of repute among his countrymen, who compiled the Latin-English portion of the Dictionary now revised and published by Davies. He then refers to the prologue to Erasmus's *Adagia* and to Luis Vives' *De Tradendis Disciplinis*. The latter treatise, to which he refers more than once later on, is one in which Vives shows himself a champion of the study of the vernacular. If the context is studied, the whole theory of education as grounded in the concrete and the immediate, in love of home and country, is seen to be involved in Vives.

**Schools and Colleges.** The attitude of the Tudors favoured the aims of these Welsh educational reformers. Henry VIII founded a Royal Free Grammar School at Abergavenny by means of the rectories and tithes of the Priory of Bergavenny and the Monastery of Usk; and, by founding Christ College, Brecon, to which very extensive monastic revenues were assigned, intended to make provision for the needs of South Wales ["... whereas also our subjects dwelling in the southern parts of Wales, being oppressed with great poverty, are not able to educate their sons in good letters nor have they any grammar schools" ... (Charter of foundation of Christ College)] on a scale which reminds one of the tradition ascribing to Henry VII, as Henry of Richmond, the intention of founding a university for Wales to be for that country what Oxford was to England, by granting a charter to Neath Abbey, then an important centre of literary activity. Under Elizabeth this projected scheme met with difficulties and failed of realization, except that a grammar school, which it was part of the original plan to attach as a preparatory school to the college, was actually founded and held in part of the collegiate building. With these exceptions none of the confiscated Welsh revenues accrued to the benefit of education in Wales.

Queen Elizabeth actively interested herself in the Principality by taking steps to secure the translation of the Bible into Welsh, by promoting an *Eisteddfod* at Caerwys, by assigning a grant towards the foundation of the Hospital of Christ, Ruthin, and letters patent for the foundation of the free school of Geoffrey Glynne, Bangor, which foundations became two of the leading Welsh grammar schools; and, finally, by granting a Charter of Incorporation to Jesus College, Oxford, in 1573. This famous College has fulfilled the purpose of its



benefactor, Dr. Hugh Price, of establishing a national Welsh College, and has done for Wales what Balliol College has done for Scotland; but its establishment seems to indicate the abandonment of the ideal of a University in Wales in favour of the alternative of bringing Welsh students to a specifically Welsh foundation at Oxford, connected with grammar schools in Wales from which, with the aid of exhibitions, scholars of small means might enter the university. At any rate, the former plan was allowed to sleep until the Commonwealth. Then, amid the turmoil of revolution, the Welsh activity of the age of Elizabeth was carried one stage further, at a time when all kinds of educational problems were being freshly discussed by the keener minds.

T. F. R.

### WELSH HISTORY, THE TEACHING OF.—

Welsh history should never be taught in isolation. If it is studied apart from the history of Britain and Ireland much of it becomes meaningless.

A large map of the country should occupy a conspicuous place in the classroom, and the influence of its geographical features upon its history carefully explained. A knowledge of the Welsh language is most desirable. A knowledge of Latin is indispensable for the mediaeval and early periods.

**Why Welsh History has Not Received More Attention.** 1. London and the south-east of England have engrossed the attention of English historians. They pay little heed to the north and west of England itself, and less to Wales.

2. The fact that the Welsh were once conquered has discredited Welsh history cannot be doubted. It is forgotten that England also was conquered by the Normans. Until recently English history began with their coming. The historians of Wales have not yet regarded their advent as a family reunion.

3. The English Teutonic historians of the nineteenth century regarded the Welsh as decadent because they are "Celts," and as inferior to the English as the French to the Germans. The alleged purity of the English "race" was the basis of the belief that it contained within itself all the germs of its great development. This view of English history made other "races" superfluous, and their destruction an advantage. The Welsh Nationalist historians were at great pains to find respectable non-Teutonic ancestors for the Welsh people. They were discovered to have been "Ierians," or Iberians and Bryttions, or Iberians, Bryttions, and Goidels. The special characteristics which must have marked these folks were discovered to be the chief marks of the Welsh people in the nineteenth century: a consuming desire for the spiritual life, an ardent love of literature, and art, and an intense zeal for liberty. During the long centuries when these features were not found in a recognizable or approved form, the Welsh people were said to have slept. This sleep lasted from the thirteenth to the eighteenth century. No lasting harm came of it because the historians could have interrupted it at any time.

Such was the scientific history of the nineteenth century, a period which may be regarded as coming to a definite close in 1914.

**I. Periods of Welsh History.** From early times to the withdrawal of the Roman Legions from Britain. The problems of this period are common to the whole of Britain; the origins of the inhabitants, their culture, languages, institutions and

religion; the Roman conquest, its extent and nature; the effects of the Roman occupation and Christianity in Britain; the survival of the Welsh language and tribal institutions.

**II. The Era of Tribal Government.** This was ended in the marches of Wales by the Norman conquest, and in the Principality by the Edwardian conquest and settlement in 1282. A tribe was an enlarged family, subject to a chief, very aristocratic and jealous of its privileges. Tribes are described as uncivilized because they make the existence of the State impossible. The tie of kindred is incapable of indefinite extension. Unions of tribes were not infrequent, but could not be lasting as long as tribal ideas prevailed.

The Welsh tribes were semi-nomadic, and lived mainly on the produce of their flocks, herds, and the chase. Tribal wars were constant. This condition of affairs should be compared with the state of Ireland in the sixteenth century.

Attention should be paid to the British Church during this period, and to its organization, ceremonies, and gradual approximation to the Roman Church.

The importance of tribal government in social evolution and the existence of tribes within the British Empire make the study of tribal government important. The Welsh laws are of course the chief authorities for tribal life in Wales.

**III. From the Norman and Edwardian Conquests to the Union of England and Wales.** During this period the marches were subjected to a feudal régime, the Principality was a dependency of the Crown, and the Prince of Wales its nominal head.

In the former the feudal régime was of the kind called "Continental." The Normans and their imitators built great castles to hold their conquests, towns arose around them, agriculture was developed, and life ceased to be nomadic. Social and economic conditions were revolutionized. Trade grew, but was hampered by tolls, demanded in every lordship.

The more important of the marchers attended the Great Council of the Realm and Parliament. Theirs form a large part of the history of England and Wales.

The rise of Gwynedd, and the alliance of its Prince with the marchers and barons of England, were portentous events. The first put a limit to the conquests of the marchers, and the second humiliated King John and Henry III. Edward I planned the reduction of the Principality and the marches. He succeeded in making the Principality a dependency of the Crown, but did not increase the royal power by doing so. The marchers had lost a possible ally, but also a possible enemy, whilst the Crown had become their rival in Wales itself.

In 1297 the barons were too strong for Edward I, as they had been too strong for Henry III and John. They seized the government in the reign of Edward II. In 1399 they established a government after their own hearts.

Foreign wars concealed or mitigated the anarchy caused by the failure of Edward I to complete his task in Wales.

**The Principality from 1282 to the Union.** Edward I subjected the Principality to military control. Towns grew up around the castles, and their English inhabitants were granted municipal, judicial, and economic privileges. The country was divided into shires, courts of justice were established, and the Welsh tribal laws were modified.



The general results of the Edwardian conquest should be compared with those of the conquest of the marches. In the Principality the castles were stronger than those of the marches, and officialism was a more marked feature of royal government than of the more easy-going rule of the marcher lords.

**The Struggle between the Privileged and the Unprivileged Classes.** The people of Wales were accordingly divided into two classes, the privileged and the unprivileged. But the Welsh, or unprivileged, were not disarmed. This was their salvation, for the bearing of arms made it impossible for them to sink into the position of helots. The King of England had need of Welsh soldiers for his wars abroad. On the battlefields of France they gained honour and distinction, and learnt that man to man they could hold their own against the privileged classes in arms.

The Revolution of 1399 was the immediate cause of the first great struggle between the privileged and the unprivileged classes in Wales. For his throne Henry IV gave his barons a free hand. (This is one of the most shameful bargains in English history.) One of these barons was Earl Grey of Ruthin, his victim was Sir Owain Glyndwr. The rising of Glyndwr shook the power of the privileged classes to its very foundations. Repressive statutes failed to check its decay. The French war consumed the men and money that might have been used in restoring it. But Welshmen fought for Henry V and his successor as they had fought in armies of Edward III. In Wales they were placed in positions of trust. Glyndwr had not fought in vain. Thus there arose a Welsh Lancastrian Party. One adventurous member of it married a royal princess and became the founder of the House of Tudor. But it was an anti-national party. Wales had nothing to hope for from the House of Lancaster.

Edward IV resumed the struggle between the Crown and the forces of anarchy. He established the court of the Welsh marches to cope with the lawless barons of the West, and made the Welshman, Sir William Herbert, Earl of Pembroke. The Chester of the south-west was put under the command of one of its hereditary foes.

The advent of Henry of Richmond united all parties in Wales. He represented the traditions of the House of Lancaster and the Welsh party that had been content to serve, and made himself, as Edward IV had done, the champion of the unprivileged classes. A Welsh bard sang that the land smiled once more, and that the English had ceased to hate the Welsh.

The Welsh regarded Henry VII as their own king. A commission of bards traced his pedigree to King Arthur, and to Adam. A halo of romance, romance which was not easy to distinguish from sober facts, surrounded the Tudor sovereigns, and inspired the poets of England.

Henry VII repealed the repressive statutes of the Lancastrian Parliaments by Royal Proclamation.

Henry VIII abolished, by Act of Parliament, the tolls levied in marches of Wales.

The Union of England and Wales was petitioned for by a number of Welsh gentlemen and scholars. The Act of Union made England and Wales one organic whole. From 1536 a seer might have foretold the Union of South Africa, or a greater. Its significance is immense. By it England became something more than it had been. It was the first great step towards Empire, an Empire of the free.

Its success was undoubted, and was urged as an argument for the union of England and Scotland. The teacher should point out very carefully the constitutional, legal, social, and economic results of the Union, and explain that all the advantages Ireland lacked Wales enjoyed to the full.

**The Reformation.** Wales accepted the Reformation because it was preceded by the granting of constitutional and economic privileges, and because it was directed by the Crown. (Preface to the Welsh Primer, 1546.)

The Reformation was most successful where the Welsh national feeling was strongest. William Salesbury, Richard Davies, William Morgan, Edmund Prys, Goodman, were all North Walian.

Wales was gradually provided with a large number of grammar schools, which sent great numbers of students to Oxford and Cambridge. The Welshman knew his classics better than he could speak English, and like Fluellin, was at times a bit pedantic. The Welsh clergyman was common enough in England to be satirized by Shakespeare.

Ben Jonson and John Milton, before the Civil War broke out, were impressed by the progress of Wales, and the haughty independence of her sons. They were not decadent, nor were they asleep.

**Wales in the Seventeenth Century.** In the struggle between King and Parliament Wales was on the side of the King, because every privilege she had had been conferred upon her by the Monarchy. The Stuarts were the heirs of the Tudors.

It has not yet been shown that the strong government of King and Council had accomplished its task in Wales. To George Owen the Court of Star Chamber was the greatest court in the land.

In the seventeenth century Wales produced a "school" of English poets, Donne, Vaughan, Herbert, and Trehearne, whose peculiarities of style were probably conscious or unconscious reproductions of those of the Welsh poets. They did not intend to be fantastic. In every walk of life Welshmen proved they were neither decadent nor asleep.

In the eighteenth century the evangelical movement destroyed the tradition of learning which the Reformation had only served to increase. Learning of all kinds became superfluous, and even an evil to those who found in the Bible and Religion everything that men need know. That feeling is not yet dead, and it is the great task of the schools and university colleges of Wales to revive the tradition of learning in Welsh homes. T. S. R.

**WELSH LANGUAGE IN SCHOOLS, THE TEACHING OF THE.**—Wales is one of the many regions where religious, political, social and racial prejudices have done much to hinder education. It so happened in Wales that, in the past generation, many people, particularly those who managed schools, thought that a bad Welshman would make a good Englishman. History has proved again and again that it is the good Welshman, proud of his country's ideals, who makes the best Briton, from the days of Inigo Jones and Hugh Myddelton down to present day men of thought and action. Great educationists have known this always, and to-day none would deny that a powerful educational force is secured not by despising and crushing, but by carefully choosing and using, what is best in the child's own environment.

In Wales to-day, we find ourselves in many

respects seeking a way out of a huge muddle, the legacy partly of rapid industrial changes, partly of unfortunate educational policies of a blundering past. It was considered wrong until quite recently to use Welsh in the schools, even when it was the only language spoken in the district; and little nites in infants' schools were cruelly expected to listen all day to what to them was a foreign language of which they understood scarcely a word. Little attempt was made to teach English, though the children were punished for speaking Welsh. The result was that they passed out of the elementary schools without much more than a parrot knowledge of a few English words, which they could read and spell but not properly understand. In recent years, however, a more humane régime obtains.

In the history of the teaching of Welsh, we are still at a period of seeking and searching rather than at one of settled policies. We cannot safely study the methods of any one great teacher and say: "This is the method for us to use in Wales." The conditions in our country and our schools are too varied for us to fix upon specific methods.

On the one hand we find a town hidden away in the heart of the mountains of the north where Welsh is heard at all times and in all places (with the sole exception of the schools for a few hours each day)—a town where in a few weeks time the children of newcomers prattle and play in the streets in Welsh to the astonishment of their parents. On the other hand, we have the newly-formed South Wales towns where 90 per cent. or more of the population are English-speaking folk or foreigners. Between these extreme cases are a host of various grades.

Before a teacher can begin to decide on definite methods of teaching he must first examine and consider the conditions around him. It would be well if he could find out the whys and the wherefores of those conditions, for such knowledge would make his work infinitely more interesting, and help him to attack difficulties more intelligently.

**Special Difficulties in Teaching Welsh.** The mixture of Welsh-speaking and non-Welsh-speaking pupils, and the consequent uneven standard of attainments, is a difficulty which many teachers of Welsh experience. There is ever present the desire to do away with the conflicting sections in the class; the teacher feels that as soon as he can raise the standard of those who hear little or no Welsh at home, he will be able to proceed faster with the class as a whole; on the other hand, he feels that it is not right to waste the time of those children who could be doing more advanced work. Perhaps he tries to help both sections separately; in other words he tries to hold two classes at one and the same time.

There are many teachers, no doubt, who are sufficiently able as disciplinarians and organizers to manage this plan; but, even if well done, the oral work, which in Welsh teaching is particularly important, must necessarily be curtailed. The difficulty may be lessened by a special classification of the children during the language lessons; but an already complicated time-table makes this plan, perhaps not impossible, but to many, unfortunately, not worth the trouble of attempting, particularly where there is not the stimulus of a public examination in the subject. The teacher therefore has to solve the problem himself. The clever one will do so by some means or other, turning to advantage

what was at first a difficulty. Perhaps he will let the children help one another in conversation and in answering questions. Perhaps he will let them teach one another games.

Undoubtedly, there are people hidden away in schools here and there in different parts of the country, who, by their initiative and inventive powers, have admirably succeeded in their work. There is too little chance, however, of other teachers knowing their methods and results, to say nothing of finding an opportunity of seeing them at work. It would be stimulating and suggestive, even to teachers of long experience, occasionally to see others at work.

In Denmark, that country which seems to have combined the genius of clever organization and simple administration, visits of this kind have proved of such value that they have become a general feature of Danish education in almost all its branches.

The work of the teacher of Welsh varies considerably according to two factors: firstly, the age of the children, and secondly, the language usually spoken in their homes. The aim of the teacher in all cases is, however, fundamentally the same, *i.e.* to lead his pupils eventually to use and enjoy Welsh literature, and to enable them to enter into the life of the people so as to share liberally and intelligently in what is highest and best in institutions and customs peculiarly Welsh.

There are two directions in which, from the very commencement, the pupil's knowledge of Welsh must develop. The first is the usual one in the study of any language, that of increasing the vocabulary and becoming familiar with idiomatic phrases; and the second, which is of equal importance and peculiar to Welsh, that of becoming accustomed to the sounds of the *initial mutations*. As far as the teacher's work is concerned, the second is by far the more important, for it is by ear that the correct mutations are picked up; thus continuous oral work is invaluable. Merely to cram rules for the use of this mutation and that is as wearisome as it is absurd. It succeeds only in making an otherwise eager student give up his studies in despair. The teaching of initial mutation is a matter of continuous ear-training. A child brought up in a Welsh-speaking home rarely comes to grief over a mutation, though a young child first beginning to talk will often show remarkable genius in avoiding the need of mutations by using simple phrases.

Until quite recently, helpful books were few and far between, and teachers had to depend almost entirely on their own initiative. Now, however, the Welsh University is beginning to bear fruit, and useful and suggestive books are beginning to appear. One of these (see Reference *infra*) is specially interesting, inasmuch as the mutations form the foundation on which the whole teaching is based. By this method, what used to be the bugbear in the study of Welsh becomes a new and continued source of interest. The mutations and idiomatic constructions are made the mainstay of the work.

**The Use of the Direct Method.** Children pick up languages by ear much more rapidly than grown-up people, and by the *direct method* the work can be made mere play to them; though to the teacher it means most careful planning out, particularly with regard to sequence of additional vocabulary and the continual recapitulation of former lessons.

It is neither necessary nor advisable to use any language but Welsh in the classes, even from the very beginning. If another language is introduced, the children tend to think in the one they know best and translate, connecting the Welsh word, not with the object it names, but with its English equivalent, which perhaps after all is not quite synonymous.

The great thing is to encourage pupils to use as soon as possible the new words they learn; but if another language which the children know better is once introduced, they will become shy of using the less familiar words. By the exercise of a little forethought, the children's vocabulary can soon be increased so as to meet the class needs of the teacher, and a second language will be unnecessary. An interesting experiment was tried recently with a class of ten or twelve children whose ages ranged from 4 to 9 years. Two children spoke Welsh only, another understood a little Welsh and the other spoke only English. The teacher had a big doll's house fully furnished. The children were taught: *Beth yw hwn?* (What is this?) and *Os gwelwch yn dda* (If you please). They were then told that they could play quietly, that if they spoke at all they must speak in Welsh, and that they could have out on the table any of the toys they could ask for. They very soon discovered the usefulness of *Beth yw hwn?* and by means of little pointing fingers and that one phrase the children who knew Welsh were soon kept very busy. It was an interesting and successful way of rapidly building up a useful vocabulary.

Nursery rhymes and folk-songs are particularly useful to the teacher of young beginners. The children remember the jingle, the mutations are correct, the vocabulary easy, and the lines generally consist of ordinary colloquial idiomatic phrases which the children will hear in ordinary conversation, such as—

*Ifan bach a finne  
Yn mynd i Lunden Glame  
I godi gwarant ar y gath  
Am yfed llaeth y bore,  
Mae gwynf y mor yn oer y nos  
Gwell inni aros gartre.*

*Mae genny' gwpwrdd cornel  
A'i lond o lestri te, etc.*

A teacher who can make a good crayon sketch of some of these delightful old rhymes will be able to make his work enjoyable both to himself and to his class. Some publishers have endeavoured to help teachers in this matter, and it would be well to make enquiries as to what is obtainable; but a teacher who can make a picture grow in front of a class, and talk about the details as they are being put in, is able to make a deep impression upon the children.

The teacher of Welsh needs to keep in mind continually the twofold nature of his work: (1) to let the children hear and gradually feel the need for the initial mutations; (2) to give the children as much opportunity as possible of using the words they have learnt. For the purpose of continual recapitulation of vocabulary, dramatized fairy tales and village games are useful. Old village games, such as *Jaco John Bach*, which is known in many parts of the country under different names, are exceptionally valuable, because they enable the brighter child to invent good questions

or answers as the case may be, and so unconsciously become the teacher of his playmates.

**Older Children.** In the case of the older children, the aims of the teacher are still the same, namely, to let the children hear good Welsh, and to encourage them to speak it themselves. The only difference is that the methods must be adapted to the age (perhaps we should say, dignity) of the children. Nursery rhymes, though not entirely thrown overboard, partly give place to simple ballads and poems, such as those of Ceiriog and Eifion Wyn, where both the music of the words and the thread of the story create interest. Instead of dramatized fairy tales, historical plays such as Gwynn Jones' *Caradog* can be used. The upper classes during a composition lesson could, with the guidance of their teacher, work out scenes from their history lessons and act their own plays. In higher classes, such as those of our secondary schools, the work is usually regulated by the syllabus of work set for definite examinations. Here again, the teacher who gives his class the best opportunity of hearing good Welsh and of using it simplifies most the work of his pupils.

No good language teacher will have satisfied himself until he has roused in his pupils an interest in the literature and history of the nation whose language he is teaching. Until recently no reliable history of Wales had been written, and this constituted one of the teacher's gravest difficulties. This deficiency, however, is being now fully remedied, and the teacher of Welsh has to keep himself up to date in his reading.

Recent history books, which are the results of careful and scholarly research, set the history of our past as a nation in a new perspective; and full acquaintance with this past cannot fail as a source of inspiration to the teacher. He should always remember also that he is teaching not a dead language, but a living and a growing one. Some of the finest things in Welsh literature have been written by men still living, men from whose pens much more can be confidently expected.

The nation in the past had to look to the Sunday school and the local literary societies, stimulated by the Eisteddfod, for its highest national education towards which the schools of the country contributed but little, and the policy that governed them was inimical to the national aspirations of Wales. But the spirit of Wales has triumphed and the present generation is living in the midst of an educational awakening unparalleled in our history.

M. S. R.

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#### WELSH LITERATURE, THE TEACHING OF.—

As in the case of every literature, the literature of Wales must be taught in close connection with the language and the history of the country which produced it. At the present time, in the Welsh educational system, the teaching of literature suffers from two tendencies: a tendency to subject it too much to the study of language, and a tendency to divorce it too much from the study of history.

Philology and historical grammar are very prominent in the university college courses, and there is hardly a secondary school in Wales which teaches language without much formal grammar; the classics of literature are too often regarded as text-books of illustrations of the rules

of grammar or of the development of the history of words. The result is that the modern teaching of literature in the educational system may be thrown away in some cases and do evident injury in others. In the case of newspaper writers, who must above all things be intelligible enough to the ordinary reader to appeal to him, the linguistic teaching of literature defeats its own purpose, because it produces an extreme revolt against the archaic and stilted style which it unconsciously encourages. This may be the reason for the feeble constructions, slipshod style, and translated idioms of many newspapers, as compared with the virile purity and picturesqueness of the prose of newspaper writers of a generation ago.

The history of Wales is rarely taught in close connection with Welsh literature. The history that is taught, moreover, is almost entirely political history. The history that explains literature, and especially democratic literature like the later literature of Wales, is economic history; but this aspect of history is sadly neglected in the colleges and schools of Wales. The increasing popularity of the Glendower period as a field of study, in which history and literature are unintelligible if studied apart, may cause the recognition of the interdependence of history and literature in more modern and better known periods.

**The Simpler Poets.** Perhaps the best way of teaching Welsh literature is to bring the student, first of all, to understand and enjoy one easy author; then to bring him to two more difficult authors representing two different schools, and to lead him to discover the difference between them; and finally to enable him to construct a plan of the development of Welsh thought and literature in which each author will take his own place.

In the case of the ordinary student, study of Welsh literature begins with Ceiriog, of all Welsh poets the easiest to understand and the easiest to appreciate. He spent his youth as a shepherd on the Berwyn mountains, and the rest of his life in Manchester and other places. His poetry is the expression of an intense longing for the mountain scenery and pastoral life of his youth. The naturalness of his thought, governed by strong common sense and radiant with kindly humour, is expressed in the simplicity of his words and diction. The history which explains his allusions is that of the period of the Reform Bills, for he was born in 1832 and died in 1887. His typical work is *Alun Mabon*, a series of lyrics describing the life of a shepherd, sung to the national airs of Wales.

Having felt the charm of Ceiriog's lyrics, the student passes on to other poets, probably to Islwyn, who was born in the same year as Ceiriog, and died some years earlier, in 1878. He will be advised to read some earlier poet at the same time, inevitably Goronwy Owen, and he will choose the powerful ode describing the day of doom. The difference between the two poets, in spite of many points of similarity, will strike him at once. Goronwy Owen was a century earlier; he was born in Anglesey in 1722, he had written *Cywydd y Farn Fawr* before 1750, he died in exile in Virginia in 1769; but the difference of time is not enough to explain the difference in thought and diction, and there is nothing in the lives of the two poets to explain it. Goronwy Owen's poignant grief on the death of his child is like Islwyn's life-long anguish when he remembered the death of his betrothed bride on the eve of her nuptials; Goronwy Owen's longing

for Anglesey when a wandering curate in England and when turning away to the then distant America with his heart made sick by deferred hope, can be compared with Islwyn's passionate love for the Monmouthshire in which he was born, and in which he lived and died. Islwyn, like Goronwy Owen, was a master of the alliterative metres, but he wrote the great work of his life, *Y Storm*, in the free metres, and mainly in blank verse. But Goronwy Owen's passion is more disciplined, his horizon more limited, his fidelity to classical models more complete; Islwyn seeks the new ways. It gradually becomes clear that the two poets, both intensely Welsh, are under very different influences. Goronwy Owen is under mediæval influences; he draws his inspiration from the Welsh poets of the period of independence; he was attracted by their clear-cut thought and perfect expression, the melody of their alliteration ever haunted his ears. Islwyn's inspiration was entirely different; the delight in the wild beauty of Nature that came from the earlier French Revolution writers, the Hegelian idea of the creative power of the human mind, and the intensity of the Welsh religious fervour of his time were combined into a new patriotic sense that sheds a spiritual light on the hills he loved so well, so that he compels us to say: "Behold, all things have become new." In Goronwy Owen we have a longing for the departed greatness of Welsh mediæval thought, in Islwyn the mighty possibility of modern Welsh thought; and, for many a long day, Welsh literature will develop under these two rival but not inconsistent influences.

**The Period of Aristocratic Rule.** In Welsh history there are two main periods. The first is a period of aristocratic rule, which culminated in the council of Llywelyn the Great in 1238, the period of princes who obeyed Llywelyn, who were deprived of political power by Edward I and his shire system, and who were finally anglicized by the Tudors. The other is a period of democratic rule, during which a people deserted by this ancient nobility learned how to rule themselves. During the earlier period the difference between classes seemed to be rigid and insurmountable, during the latter period every new influence in history has brought greater equality.

Each of the two periods has its own literature. The literature of the princes has already had its rise and its decline. Its golden period was the middle of the fourteenth century, when the sun of Welsh independence was setting. It reaches its culminating point, in prose, in the simple and picturesque diction of the final form of the tales called the *Mabinogion*; and in poetry in the succession of love and Nature poets of whom Dafydd ap Gwilym is the chief.

Much attention is now being paid to the study of this period. The earliest extant texts of the *Mabinogion* have been published with the greatest care, and their literary charm has been fully felt by modern readers; but the ancient customs embedded in them—"stones not of this building," as Matthew Arnold calls them—as well as so many problems for the philologist and the historian, remain among the most interesting of studies for the future. Far less important as literature, though of great value as history, are the chronicles, the laws, and prose books of religion which were put into writing as we have them during the same period. The poems of Dafydd ap Gwilym have

been printed since 1789, and the works of his contemporaries and successors are being issued rapidly from the active Welsh press of the present day, partly because university students find a congenial task in editing the works of a poet which have hitherto remained in manuscript, with an introduction to serve as a thesis for a degree.

The mediaeval literature of Wales began as a patriotic literature. The bard sang of the exploits of his prince. With the rise of the house of Gwynedd during the national struggles against the Norman barons and the kings of England, its four great princes, with their allies of Powys or Deheubarth, became the theme of the poets. Griffith ap Conan was mourned by Meilir; Owen Gwynedd's praises were sung by Gwalchmai and Cynddelw; Llywelyn the Great was the centre of a cycle of patriotic poets, young and old, among whom were Llywarch ap Llywelyn and Davydd Benfras; the last Llywelyn was described by Llygad Gwr and mourned by Griffith ap yr Ynad Coch. And among the princes themselves were poets of ability, like Owen Cyveiliog of Powys and Howel ap Owen Gwynedd. The Cistercian monks of Strata Florida described the same chiefs in prose; and the knights of the *Mabinogion*, with their background of pagan or Arthurian mystery, seem to be the Welsh princes described in picturesque prose and transfigured by the quaint fancy of the narrator into knights of the older chivalry.

After the fall of the last Llywelyn in 1282, the poetry of Wales developed into the most perfect form it attained during the middle ages. Its chief connection with the patriotic poetry was its adoration of the Virgin Mary, preached by the Franciscans who affected the life of Wales so profoundly. Mariolatry was humanized, the priest became a cathedral, Nature and humanity were idealized, and love became the one theme. The central poet of this school is Dafydd ap Gwilym, and other typical poets are Bodo Brwynllys, Ieuan Deulwyn, and Davydd ap Edmund.

With the rise of Owen Glendower poetry became patriotic again, and the grace of the fashion of it began to perish. But it is no longer patriotism for a prince, it is patriotism for a country, and especially for its peasantry. Sion Cent preached the equality of men; Iolo Goch sang the praises of the labourer. And later on Lewis Glyn Cothi turned from the Herberts and Tudors of the Wars of the Roses, remembered that the ancestor of them and of all men was a labourer, and described the plough.

The mediaeval period ended with the Carmarthen Eisteddfod of 1451, into which Davydd ap Edmund brought stricter rules for composition, and the Caerwys Eisteddfod of 1523, in which the Franciscan Tudor Aled presided over a conference for the stricter regulation of the bards themselves. Though the two poets echo the melody and recall the grandeur of the period of the princes, the growing artificiality of thought dominated by strict rules shows that poetry was rapidly declining. The anglicizing of the Welsh gentry by the Tudors, and the suppression of the monasteries, removed the old patrons of Welsh literature, and the deserted Welsh music began to tune its harp to peasant ears.

**Literature of the Modern Period.** The literature of the modern period is democratic, and its rapid development from the homely stanzas of good old Vicar Prichard to the odes and poems of Islwyn is the most interesting study in the history of the literature of Wales. Prose began with translations,

of which the Welsh Bible of Bishop Morgan, published in 1588, is the greatest; and it reached the perfection of its style in the original writings of Theophilus Evans and Ellis Wynne at the beginning of the eighteenth century. Poetry had a longer and more varied history before it reached the same height. At first its development seemed to be taking a simple and uninterrupted course. From the *Canwyll y Cymry* of Vicar Prichard at the beginning of the seventeenth century, describing to the Welsh peasantry their simple duties in many hundreds of unadorned stanzas, we come to the melodious lays of Hugh Morris, the cavalier poet, and of Edward Morris, at the end of the century, containing studies of human nature expressed with much feeling for music. Following them, in the eighteenth century, came the Welsh plays of Twm o't Nant, where we find the lyrics of the previous century enshrined in a drama which held up the mirror faithfully to peasant life.

But two outside influences came in. The Methodist Revival brought an intensity of feeling which made men turn away from the drama; it produced the hymns of Williams Pant y Celyn, and gave Welsh peasant literature an earnestness and a dignity and a strength it has not yet lost. The other outside influence was that of the literature of the period of the princes; a number of patriotic scholars during the eighteenth century revealed its forgotten glories, and Goronwy Owen gave life to its voice again. In prose, the novels of Daniel Owen, realistic descriptions of peasant life, take the place of the *Mabinogion*; in poetry, lyrics of great beauty and naturalness take the place of the alliterative ode. But the spirit of ancient times persists still; and in Elen Fardd's *Awdl y Flwyddyn*, the clear-cut thought, in the old alliterative metres, has all the naturalness of *Alun Mabon*; and Islwyn himself, though his characteristic poems are in the new garb and in the free spirit, has written perfect pieces in the old way.

Once the outlines of the growth of Welsh literature are clear, it is easy to find individual poets and individual subjects—such as the feeling for natural beauty, the love of the sea, the substitution of the novel for the drama, and the innumerable points of difference between the mediaeval period and the modern—which will prove fascinating studies.

O. M. E.

**WESLEY, JOHN.**—There are few departments of education in which Wesley was not interested. Help in teaching children to read was one of the undertakings of the Holy Club (*Journal*, i. 97). In Savannah, and afterwards at several of his principal centres of work (The Foundry in London, Bristol, Newcastle, and elsewhere: *ib.* v. 262) provision was made for the primary instruction as well as the religious training of children. The Sunday School movement, initiated by a Methodist at Wycombe in 1769, was adopted by Wesley in 1784, and for a long time embraced the elements of secular knowledge. In 1739 a beginning was made with the erection of Kingswood School (*ib.* ii. 171, 228); and the scheme grew until it included what would now be called a primary school, together with higher boarding schools for both girls and boys, though all these departments appear to have never been in active working at the same time.

In 1768 (*Works*, xiii. 249 ff.) the school proper

was confined to boarders, and Wesley published a detailed account of the course of study with the rules of the house. The age of six was fixed as the minimum for admission, and Wesley himself wrote English, French, Latin, Greek, and Hebrew grammars, with many other text-books, for the use of the scholars (*Journal*, iii. 530). It will be seen that the curriculum was very wide in regard to languages, while a place was found in it for logic and ethics, for geometry and physics, for music and "chronology." Special attention was given to the translation from English into Latin, and "those who have a turn for it" were set to the making of Latin verses. An advanced course, rising to a university standard, was prepared for boys who had completed their earlier training.

The discipline of the school was severe. The children rose at four, and spent the time till five in private, partly in reading and partly in self-examination or meditation, "if capable of it." For every hour some employment was provided, "always in the presence of a master"; at eight they went to bed. Nothing like play was permitted, for "he that plays when he is a child will play when he is a man"; but on fair days the boys were set to work for a short time in the garden. It was a Spartan discipline, the maintenance of which gave Wesley incessant trouble; and it was not until after his time that, by adequate relaxation, the training was made more humane without any loss in efficiency. His methods were learnt from his mother (*ib.* iii. 34 ff.), and were set forth in detail in a sermon on the *Education of Children* (*Works*, vii. 86 ff.), and further defended in a public *Letter* (*ib.* xiii. 434 ff.).

R. W. M.

**WEST INDIAN ISLANDS.**—(See JAMAICA AND THE BRITISH WEST INDIES, EDUCATION IN.)

#### WEST OF ENGLAND UNIVERSITY, BRISTOL.

—This University was incorporated by Royal Charter in 1909, and took over the former University College of Bristol, founded in 1876. The principal buildings are situated on an elevated site near the centre of the city. Considerable extensions, which had been suspended during the late war, are now going on, and when these are completed the main buildings will cover a site of about 13 acres. The Society of Merchant Venturers provides and maintains the entire Faculty of Engineering, the work of which is conducted in the Merchant Venturers' Technical College, also centrally situated.

There are four faculties: Arts, Science, Medicine, and Engineering. The initial degree courses in connection with these faculties lead to the degrees of B.A., B.Sc., B.Sc. (Eng.), M.B., Ch.B., and B.D.S. The higher degrees of M.A., D.Litt., M.Sc., D.Sc., Ch.M., M.D., and Ph.D. are, with the exception of the medical degrees, open to graduates of Bristol and other universities, under varying conditions. Diplomas are also granted in Education (Post-Graduate), Dental Surgery, and Public Health.

The chief officers of the University are the Chancellor, four pro-chancellors, a vice-chancellor, a pro-vice-chancellor, and the Deans of the Faculties. The Vice-Chancellor and the Professors constitute the Senate, of which the Registrar is the secretary.

There are well-equipped scientific, medical, and engineering laboratories. The various libraries contain towards 50,000 volumes. A certain number of institutions are associated with the University for the purpose of instruction in various subjects not

taught in the University itself. These include the Bristol Baptist College, the Western College (Bristol), the Theological College (Salisbury), and St. Boniface College (Warminster) for theological teaching, and two schools in Bristol for Froebel training; and the National Fruit and Cider Institute, which is incorporated in the University's Agricultural and Horticultural Research Station at Long Ashton. Clinical instruction in Medicine, Surgery, and Dental Surgery is provided in the hospitals of the city.

There are Halls of residence for men and for women. The inclusive fees for board and residence range from £45 to £70 per annum, according to the accommodation required.

The University has a contingent of the Officers' Training Corps, which rendered valuable service during the war.

Thanks to the munificent benefactions of the Wills family, the University enjoys a unique site, and its buildings will shortly rival anything else of the kind in England, outside of Oxford and Cambridge.

The number of regular students is over 1,200, including about 350 women, exclusive of evening students and of those whom the University is serving in the way of extra-mural teaching.

#### WESTERN AUSTRALIA, EDUCATION IN.—

**Elementary Education** was placed on a sound basis by the Act of 1871, which made attendance compulsory and provided for the establishment and maintenance of public schools, and for granting assistance to others. State aid to private schools was abolished in 1895, and the payment of fees in 1899. By the Act of 1893 teachers were required to include general religious teaching in the curriculum, while special religious teachers were allowed to give instruction in the tenets of their particular faith up to one half-hour each day. Daily attendance is compulsory for children from 6 to 14 years of age, though children over 9 living three miles away, and under 9 living two miles away are exempt. Attendance is very satisfactory when the scattered nature of much of the population is borne in mind. In 1913 a new curriculum was introduced which followed closely that of Victoria (*q.v.*). The primary course is taken in six classes during the period from 6 to 12 years of age. In the remaining years of the compulsory period, where circumstances permit, pupils choose a commercial, industrial, or domestic course: where the equipment is not yet available for specialized vocational instruction, greater freedom is allowed the teacher with a view to the cultivation of self-activity on the part of the child. Considerable attention has been paid to handwork in the lower classes, and to manual training in wood in the upper. In 1917 there were thirty-six centres, with bench accommodation for 720 pupils and a total enrolment of 5,107, while in thirty small schools a modified scheme requiring less expensive equipment was adopted. Instruction in domestic science, though comprehensive, is not so well developed, only twelve centres, attended by 2,931 girls, being in operation. No arrangement was made for medical or dental supervision of children until 1917, when one medical officer for schools was appointed.

**Secondary Education** is almost entirely in private hands, only two schools having been founded by the State—the Perth Modern School, established in 1911, and with an enrolment of 412 in 1918,

and the Kalgoorlie High School established in 1914, with an enrolment of 201 in 1917. There are eleven private schools, mostly Roman Catholic, where may be held the ten secondary schools' scholarships of the annual value of £15—£25, which are granted by the State. Since 1913 a system of District High Schools and Central Schools, providing shorter secondary courses, has been established, and is rapidly extending; in 1917 these were attended by 3,077 pupils.

**Agricultural.** Nature study and school gardening are usually taken up in the rural schools, often with marked success, though the supervision and assistance which such work demands is not adequately supplied by a single Advisory Teacher, who is in charge of drawing also. A Farm School was opened at Narrogin in 1914, where, in addition to practical work, theoretical instruction is given preparatory to the Diploma of Agriculture instituted by the University. No Agricultural College has yet been established, but a few students receive instruction on the State Farm at Chapman.

**Training of Teachers.** The residential Training College at Claremont was opened in 1902, and in 1913 was attended by sixty-six students taking the full two years' course, and forty-nine taking the six months' special course for small country schools. The College is connected with the University, where the students take certain subjects of their course, and has attached to it five practising schools. A "monitor" or pupil-teacher system is in vogue, and from this system most of the students are drawn, though pupils may pass direct from the secondary schools to the training college if they possess the leaving certificate.

**Technical.** The centre of Technical Education is the Perth School, founded in 1900 and considerably enlarged in 1909, where, before the founding of the University, full preparation was given for the B.Sc. of Adelaide. Branch schools under the supervision of the Director of Technical Education are established at eleven centres, and were attended in 1917 by 2,767 students. The total expenditure on technical and continuation education in the same year was £19,654. The apprentices, numbering over 100, in the State Railway Workshop at Midland Junction are given instruction during the daytime in mathematics, drawing, and engineering subjects in schoolrooms provided at the works.

**University Education.** The University of Western Australia was opened in 1913 with six chairs—in modern literature and history, mathematics and physics, chemistry, engineering and mining, geology, and agriculture. The expenditure by the Government on University education in 1917 was £15,100.

J. H. H.

**WESTFIELD COLLEGE (University of London).**—This was founded in 1882 by Miss Ann Dudin Brown, who made over to trustees a sum of £10,000 to establish a residential college for women preparing for the degrees granted by the University of London. The college began its work in Maresfield Gardens, Hampstead. By the generosity of Miss Dudin Brown, Mrs. Alexander Brown and others, a freehold site of 2½ acres, containing a large house and a beautiful old garden, was later acquired near the south-west corner of Hampstead Heath. Additional buildings were erected, and asphalt and grass tennis courts laid out, and the college was established there in 1891. It stands

at a height of about 400 ft. above sea level and commands a fine view of London and the surrounding hills. Its position makes possible the valuable combination of a university course of study with that enlargement of interests and understanding which is to be gained by contact with the varied life of London.

The College session extends from the beginning of October to the end of June, and is divided into three terms of about ten weeks each by short vacations at Christmas and Easter. The college buildings accommodate sixty students and six lecturers. In most cases each student has a separate study and bedroom adjoining. Although a few non-resident students are admitted, the aim has been from the first to maintain a college of the type of those established in Oxford and Cambridge, in which staff and students join in the social and intellectual life of the same community. The college is founded on a religious basis; the principal is required to be a member of the Church of England, but this restriction does not apply to the staff or the students.

In 1908 Lord Alverstone (then Lord Chief Justice of England), became Chairman of the Council, and held this office until his death in 1915.

In 1913 Miss Maynard, who had been Mistress of Westfield College from its foundation, resigned, and Miss de Selincourt (of Girton College, Cambridge and Somerville College, Oxford) was appointed principal. The vice-principal, Miss A. W. Richardson (of Newnham College, Cambridge), has been a member of the staff of the college since 1887. The staff also includes two Fellows of Girton College, Cambridge, besides other scholars of distinction.

In 1902, four years after the re-constitution of the University of London, Westfield College was admitted as a school of the University in the Faculty of Arts. The botanical laboratory is recognized for both pass and honours work in connection with the University.

A review of its academic record shows that Westfield College has achieved an honourable position in the University; it stands almost first among the affiliated colleges as regards the proportion of its students who have taken their degrees with honours, and successes include university prizes and open scholarships, and also post-graduate degrees. Up to the present time (July, 1916), the number of students of the college who have obtained the degree of D.Litt. is one; of M.A., 14; of B.A., 214; and of B.Sc., 30. Members of the staff join in the work of the University as members of Boards of Studies, as Examiners, and occasionally as Inter-Collegiate Lecturers.

**Aims and Achievements.** Within the college, honours and pass courses are provided in the following subjects: classics, history, English, French, German, mathematics, philosophy and botany, and in addition students attend special courses of Inter-Collegiate lectures in the Faculties of both Arts and Science. Students are also prepared for the Archbishop's diploma in theology. The college takes its full share in the Inter-Collegiate societies of the University, e.g. the Athletic Union, Debating Society, and Students' Representative Council. Among the various societies within the college are the Student Christian Movement, the Musical Society, Debating Society, Historical and Archaeological Clubs, Society for the Study of



Social Questions Shakespeare Reading Society, tennis, hockey, boating clubs, and fire brigade.

A characteristic feature of the college is the closeness of the relations maintained with the old students. A great many avail themselves of the guest chambers at the college, where they have the privilege of staying for two nights every year. By this and other means, each generation of present students is kept in touch with the various kinds of work undertaken by those who have left. The number of past students is now over 500. Of these, more than 100 are married; a large proportion are in the teaching profession (including over twenty headmistresses in England, South Africa, Canada, New Zealand, India and Japan, and twelve college lecturers), while many others are engaged in social, missionary or medical work. Their university training has by no means limited them to an academic career, but has led some to do pioneer work in the new professions which are opening to women, such as that of hospital almoners, medical inspectors of schools, or of workers on insurance and health committees. Two are wardens of settlements; others are devoting themselves to research or to journalism. In many cases those who are not free to take up a profession find opportunities for local government work, or service on public committees. By the arrangement of occasional lectures from experts, the college aims at bringing the students into touch with the chief movements of the day, and providing them with information about the various careers open to women. The wide range of work undertaken by former students shows that this is an important supplement to academic training.

A certain number of scholarships of from £25 to £50 a year are offered for competition at an examination held annually in May. There is also a Loan Fund for the assistance of candidates of promise who would otherwise be unable to enter upon a university career. The fees for resident students are from £90 to £105 a year; for non-resident students the fees vary from 1½ guineas a term to 40 guineas a session, according to the courses attended.

A. DE S.

**WESTMINSTER SCHOOL.**—Though Westminster School claims to be only an Elizabethan foundation, there was certainly a school attached to the Abbey for many centuries before 1560. Ingulphus, Abbot of Croyland, tells a pretty (but now discredited) story of how Queen Edith used to meet him on his way from school, and, after examining him on his progress, give him cakes and money as a reward: if authentic, this would take the school back to 1050. The original Abbey school is probably very little later than the Abbey itself. Many details of the history of the school from 1370 onwards have been revealed by recent study of the Latin Rolls in the Muniment Room of the Abbey. In 1540, Henry VIII laid hands on the Abbey revenues and turned the last abbot into the first dean. Mary set up the monastic establishment again, but Elizabeth dissolved it, and in 1560 refounded the school on much the same lines as those laid down by her father, connecting it closely with Trinity, Cambridge, and Christ Church. There were two schoolmasters and forty royal scholars, and "town-boys" were allowed to attend as boarders or home-boarders. In 1638, Richard Busby became head master, "a person eminent and exemplary for piety and justice, an encourager of virtuous and forward youth, that

educated more youths that were afterward eminent in the Church and State than any master of his time." Of him, Sir Roger de Coverley said: "A great man, Dr. Busby; he whipped my grandfather; a very great man." Busby ruled during troublous times, and the school narrowly escaped destruction when Parliament sequestrated Church property in 1642. He died in 1695, after a mastership of fifty-seven years, during which he gave the school its definite character as a seminary for the ruling classes: in 1714 there were five O.W.W. in the ministry; in 1757 there were six; in 1848 there were eight. In the early nineteenth century the school declined; the Abbey ceased to take a proper interest in it and allowed it the bare sum to which Elizabeth's statutes entitled it: as money was worth perhaps twelve times less than in her reign, the contribution was inadequate and unfair. The buildings fell into bad repair; the whole place seemed ruined. It was the time when the new spirit was beginning to be breathed into public school education by such men as Arnold of Rugby and Vaughan of Harrow. An inquiry was opened, and in 1846 H. G. Liddell instituted energetic reforms. He was followed in 1855 by C. B. Scott, who ruled until 1883. During his tenure, the Public Schools Commission sat, one result being the legal separation of the school from the Abbey, though the religious connection between them is still maintained and the Abbey Church is still used as the school chapel. A handsome endowment was made for the rehabilitated institution, including convenient premises in the Abbey buildings, and spacious playing-fields—particularly the large one of 10 acres in Vincent Square. The present head master is the Rev. H. Costley-White, and there are upwards of 340 boys in attendance, including fifty K.S.S. Classics still hold pride of place, but science and other modern subjects are studied by all boys on the classical side. Of the eighteen forms, nine are classical, nine modern.

The daily time-table is—

	Winter.	Summer.
"Prep."		7.30-8.0 a.m.
"Chapel" in Poets' Corner	9.30 a.m.	
First "School"	9.45-10.30 a.m.	
Second "School"	10.35-11.20 a.m.	
Third "School"	11.25 a.m.-12.10 p.m.	
Dinner	1.15 p.m.	
Fourth "School"	3.30-4.10 p.m.	
Prayers "Up School"	4.50 p.m.	
Tea		5.0 p.m.
"Occupations"	5.15-6.15 p.m.	
Supper	6.15 p.m.	7.15 p.m.
"Prep."	7.15-9.0 p.m.	8.0-9.30 p.m.
"Lights Out": Juniors	9.30 p.m.	
"Lights Out": Seniors	10.0 p.m.	

"Occupations" are school societies, library, etc. The former include debating, Shakespeare, literary, madrigal, orchestral, art, scientific, and natural history societies. There is a flourishing Officers' Training Corps.

The most famous of all Westminster institutions is the Play, performed just before the Christmas holidays. This is a Latin comedy of Plautus or Terence, and is preceded by a prologue, spoken by the captain of the King's Scholars and dealing with notable school events, and followed by the Epilogue, a kind of *revue* of current topics, political and social. These two adjuncts are usually very witty and amusing, and their Latinity unimpeachable. Another great and exciting time is the Tossing of the Pancake "up school" on Shrove Tuesday.

Games flourish at Westminster, particularly football. In 1867, Westminster and Charterhouse



put their heads together and evolved the Association game. Many brilliant players are formed in Little Dean's Yard and Vincent Square. Cricket also is organized splendidly, and the "wicket" is one of the most perfect in England; great cricketers have been and are being produced. "Water" (*i.e.* rowing) was revived in 1916 after thirty years intermission. Racquets and fives are also very popular.

**WESTMINSTER TRAINING COLLEGE.**—To promote the interests of Wesleyan day school education, the Wesleyan Education Committee was formed in 1837. This body decided in 1843 to erect a normal school for the training of Wesleyan teachers. A college for 100 students was erected in Westminster and opened in October, 1851. Schools were also erected to accommodate 1,300 children. One of these was a "model" school, opened in 1850; and an industrial school for girls was opened in 1851. The college opened with 68 students, 47 being men and 21 women; and in a few years it was found necessary to enlarge the college to provide for 132 students. Further enlargements were made in 1863 and 1867. With the increase in the number of Wesleyan day schools came an increasing demand for Wesleyan teachers, and in 1872 Southlands College (*q.v.*) was opened in Battersea for women; and the Westminster College from that time has admitted men only. The college has always ranked high among training institutions; and, in the days when they were classified in order of merit, Westminster at times was placed first or second.

A large grant from the Wesleyan Methodist Twentieth Century Fund in 1902 enabled the college committee to undertake very extensive alterations, enlargements, and improvements. Provision was made for the teaching of chemistry and physics, for physical training, for instruction in art and music. A handsome library was established, and new and well-lighted rooms were added for study and recreation.

Students are admitted in accordance with the regulations of the Board of Education, and enter the University Section or the Board of Education Certificate Section. Graduates and persons who have passed higher local university examinations are admitted for one year's training, and a few certificated teachers may also enter for one year's course.

The Principals of Westminster have been the Rev. John Scott (1851–1868); the Rev. James H. Rigg, D.D. (1868–1903); and the Rev. H. B. Workman, M.A., from 1903. Among the distinguished tutors were Charles Mansford, B.A., a tutor from 1854 to 1888, and vice-principal for the last six of these years; William Sugden, B.A., vice-principal (1851–1881); Joseph H. Cowham, lecturer (and writer) on education (1875–1911); John R. Langier, B.A. (1850–1875), and afterwards assistant secretary of the Wesleyan Education Committee. The students who have become celebrated are very many in number, and include Mr. Thomas P. Sykes, M.A.; Mr. Arthur R. Pickles, B.A.; and Sir J. H. Yoxall, M.A., who have all been presidents of the N.U.T.

**WESTMINSTER, THE EDUCATIONAL CHARITIES OF.**—These endowments afford typical examples of old foundations reconstructed for effective service as a result of the Endowed Schools

Commission of 1865, and its sequel, the Act of 1869.

**Origins.** Besides the Abbey, the Court, and the mansions of the great, Westminster contained extensive slums in which poverty and vice were rampant, so that the charitable institutions maintained by them fall into two groups. Three of the foundations were the work of individual benefactors—the great lady, the pious clergyman, the philanthropic citizen—who founded almshouses for aged poor and combined therewith provision for destitute children. The other three were schools only, started by groups of worthy folk to train the children of the poor for the humbler duties of life. In all, admission was by favour, not by merit, discipline was inefficient, and the instruction rudimentary in the extreme. In fact "these endowments now (1866) act largely, though indirectly, in the *discouragement* of education." (Commissioners' Report.) "The children were clothed in a distinctive dress to show that they were objects of public benevolence. The whole conception was partly religious and partly feudal, but almost wholly ignoble." (Sir Joshua Fitch.) It was also wasteful; in 1873 there were some 200 children in the five establishments, costing about £7,000 a year. On the other hand, the old-world buildings, with their formal gardens, were picturesque and full of charm. "With them have perished the sentiment and romance of the streets of Westminster. For the Grey Coat girls, however, their old house still remains—a most beautiful monument." (Sir Walter Besant.) This was originally a workhouse (said to be the first in England) which was acquired for the school in 1701.

**The Schemes of 1872.** Inquiry was followed by inevitable reconstruction, which, in view of the provisions of 1870 for Elementary Education on a national basis, naturally led to the establishment, in place of the expensive "Hospitals," of Secondary Schools of the types required to fill the gaps in the national system. The Grey Coat Hospital was to become a day school for 300 girls, and a girls' boarding school was to be established in the country. The four older charities (minus about half of their funds reserved for the almshouse work) were to be consolidated as the "United Westminster Schools," and to provide a lower and an upper day school for 300 boys, each in Westminster, and a boarding school to be called Emanuel School. The old governing bodies were superseded by two new and representative boards. Moderate fees were prescribed, but many free places were to be open for competition.

These schemes aroused fierce opposition as contravening the intentions of the pious founders by transferring the benefits of the endowments from the poor to the class above them, and as unjustly depriving the existing governors of their rights of administration and patronage. The long controversy is remarkable for the firm and prescient handling of the whole case by the Secretary to the Commissioners, Mr. H. J. Roby.

**The Grey Coat Hospital.** The Grey Coat Governors succeeded in restricting free places (except a few for cases of orphanage or adversity) to children of the elementary schools of the district—a proviso extended to the boys' scheme also—and in maintaining the distinctively Church of England character of the School. This was because their charter, being subsequent to the Toleration Act, contained a clause specifying that

the Church Catechism should be taught, and it was the chief reason for the separation of the endowments and governing bodies for boys and girls. The Grey Coat Hospital was opened on the new lines in 1874, under Miss E. S. Day, who remained head mistress, with remarkable influence and success, for 36 years. Recent important additions mark the continual growth and prosperity of the school, the charm of whose buildings and garden is reflected in the "family feeling" that has long been a marked feature in its life.

**Queen Anne's School.** In 1894 the boarding school for girls was opened, under this title, in an admirable block of buildings at Caversham. It evidently meets a real want, as it is always full, with a long "waiting list."

**Westminster City School.** The opposition to the boys' scheme was even more formidable, for it brought into the field the Lord Mayor and Aldermen of the City of London, who resented the proposed abolition of their rights as Governors of Emanuel Hospital. (These rights had passed to them on the death of Lady Dacre's trustees in 1623. Two of her ancestors had been Lord Mayors, but the chief reason for the transfer was perhaps the fact that Westminster possessed no municipality or other body suitable for the trust.) The scheme would probably have been lost but for a masterly speech by Mr. Gladstone. The upholders of privilege were routed and the scheme passed, May, 1873.

In 1874 the lower boys' day school was started in the old buildings of St. Margaret's Hospital under Mr. R. E. H. Goffin, who remained head master for 32 years. It was moved in 1877 to new premises erected in part of the garden of Emanuel Hospital, and soon filled the place of the two schools originally planned. With 40-45 boys in each form, the numbers reached a maximum of 850, including the 190 Foundationers.

The school, known since 1899 as Westminster City School, was the first in London in which free places on such a scale were provided—a remarkable anticipation of the "25 per cent." of 1902. In spite of certain difficulties, the plan justified itself for many years. Forms being now restricted to thirty, the maximum numbers are about 620. In consequence of this, of the increasing cost of education, and of the establishment of the L.C.C. Junior Scholarship Scheme, the number of free places has been reduced to sixty.

The school was further distinguished as almost the first in which practical science teaching was given on a large scale. This was the direct work of Mr. Goffin, who had studied under Hofmann and Tyndall, and it produced many successes and striking examination results.

The recent closing of the Blue Coat School and the division of its funds put some £10,000 at the disposal of the governors. This enabled them in 1910 to build a splendid hall, and to bring the equipment of the school again abreast of the time.

**Emanuel School.** The Emanuel boarding school was carried on for nine years in the old Hospital buildings in makeshift fashion with about seventy boys. Finally, in 1883, it was transferred to an imposing building (bought from the Royal Patriotic Fund) near Clapham Junction. The numbers increased rapidly to about 180 boarders (25 per cent. of whom were "free-placers") and 200 day boys. But the site was too near London, and in 1910 it was decided to make Emanuel a day school only. In that form its success has continued

and, indeed, increased, the numbers being now some 650.

**Sutton Valence School.** To serve as the boys' boarding school of the Foundation, the governors took over from the Clothworkers' Company Sutton Valence School, near Maidstone, founded in 1576. A new school and boarding houses (to accommodate ultimately 200 boys) were built on a superb site above the old school. The numbers have risen steadily, and the school is now full, with every prospect of continued success.

The contrast is striking between the schools as they were in 1873—miserably ill-equipped and inadequately staffed, scarcely able to bring their 200 children to elementary school level—and the fine buildings and competent staffs of to-day, providing for some 2,000 pupils (many of them holding Foundation or L.C.C. Scholarships) the advantages of secondary education in its fullest form. E. H. S.

**WEYMOUTH COLLEGE.**—This small first-grade public school, founded in 1863, was acquired in 1901 by the present Board of Governors. It is maintained on Evangelical Church of England principles. The number of boys in the school is 160. The Junior School for boys under 13 years has its own separate buildings and organization. A limited number of day boys is admitted to the school.

Subjects taught throughout the school include Latin, Greek, French, English, and Mathematics; but German is substituted for Greek on the Modern side. All boys except those in the lowest form are instructed in Chemistry and Physics, and special classes are held in Drawing, Shorthand, and Book-keeping. Preparation is made for Scholarships at the universities, for the Army and Navy and Civil Service Examinations, and for the Preliminary Scientific and First M.B. Examinations at London University. Four entrance examinations of the value of £40 to £20 are offered annually for competition.

The cricket and football grounds cover about 18 acres. There is an Officers' Training Corps.

School societies include debating, literary, musical, and photographic societies.

**WHEATSTONE, SIR CHARLES.**—A scientist and philosopher who shared with Sir William Rothenhill Cooke (1806-1879) the distinction of discovering a practical application of electric telegraphy. With Cooke he took out the patent for the electric telegraph in 1837.

He was born in 1802 and was appointed professor of experimental philosophy at King's College, London, as early as 1834. In 1838, in a paper read before the Royal Society, he described, for the first time, the stereoscope, which he invented.

His death occurred in 1875.

**WHEWELL, WILLIAM** (1794-1866).—Writer of the *History of the Inductive Sciences*, 1837, and the *Philosophy of the Inductive Sciences*, 1840, was born at Lancaster, son of a master-carpenter, and educated at the Blue School, and at the Grammar School in that town. In 1812 Whewell was exhibitor of Trinity College, Cambridge; in 1816, 2nd wrangler and 2nd Smith's prizeman; and in 1817 was elected Fellow of the College. He travelled abroad and was distinguished by the width of his interests. In 1838 he became Professor of Chemistry and Moral Philosophy. In 1841, he became Master of Trinity College, Cambridge. Inside the college he led a movement for the

revision of the statutes. In 1842, he became Vice-Chancellor of the University of Cambridge. He brought into closer connection the teaching and the examining of the Mathematical and Classical Triposes. He determinedly interfered to enforce order and decorum on the part of undergraduates in the Senate House. He instituted Long Vacation residence under college regulations, and brought sports into closer connection with college life.

Whewell was at one time (1828-1832) Professor of Mineralogy in the University of Cambridge. He wrote on astronomical subjects, and was a frequent attender of the British Association meetings. He thus brought the academic element into closer touch with other progressive movements in the country.

**Work on behalf of Education.** He was a leader of the very first rank in the university studies, especially of the moral and natural sciences and international law. In 1837 he published *The Principles of English University Education*; in 1845 *Of a Liberal Education in General*. The latter work was supplemented by further studies on the subject in 1850, and in 1853. Whewell was an advocate of a wide general education. Classics connect the mind with the past; but mathematics are necessary as a discipline. Science connects the mind with the future. These views were proclaimed in 1837, but Whewell did not satisfy himself until they became effective by the institution of "Natural Science Triposes" in 1848, and in 1852 he proposed the appropriation of a certain part of the Trinity College Fellowships and Scholarships for distinction in the Moral and Natural Science Triposes, with freedom from all obligations to Holy Orders and celibacy. In the same year, 1828, Whewell succeeded in getting recognized the "Moral Sciences Tripos" open to students who had obtained the degree of B.A., LL.B., or M.B. Whewell resigned the University Chair of Moral Philosophy in 1855. Between 1855-61 appeared his *Platonic Dialogues for English Readers*. In none of these projects and achievements did Whewell put himself in line with the future more than in his promotion of the study of International Law. "I believe," he said, that a "project of a perpetual peace is by no means a mere dream, if it be based on received International Law." His views may be found in the last three books of his *Elements of Morality* (1845), and in his translation from Grotius. In accordance with his will, he founded a professorship and valuable scholarships in International Law.

F. W.

**WHISKEY MONEY.**—(See LONDON COUNTY COUNCIL, EDUCATIONAL WORK OF THE.)

**WHITBREAD, SAMUEL (1758-1815).**—Of a Bedfordshire family, he became possessed of the London brewery known under his name. He was educated at Eton, Oxford and Cambridge, became M.P. for Bedford in 1790, and distinguished himself as a leading opponent of oppression and abuse. In 1807 he brought forward a comprehensive Poor-Law Bill. His scheme included the establishment of a free education system which excited great public interest. The educational proposals were converted into a separate Parochial Schools Bill under which children between the ages of 7 and 14, and unable to pay fees, were entitled to two years' free education. Unfortunately the scheme was abandoned.

**WHITELANDS TRAINING COLLEGE** (Chelsea, London).—In 1839 the Rev. Wyatt Edgell gave £1,000 to the National Society to start a building fund for the erection of a training college for school-mistresses. In 1841 the Old White House, Chelsea, was taken, and Mrs. Field placed in charge of the students. Candidates were admitted between the ages of 17 and 25 years at a fee of £15 a year, and the course might extend to one, two, or three years. Accommodation was provided for forty students, and the Normal School opened in 1842 with ten students. Mr. Hullah (*q.v.*) was appointed teacher of music. In 1847 the Rev. H. Baber became chaplain, and was general superintendent from that time till his resignation in 1872. A practising school, called the commercial school, was opened in 1842; and was followed by an infants' school in 1843, and a model school and a junior commercial school in 1844. The schools gave the students practice in teaching boys, girls, and mixed classes. From twelve pupils under one mistress in 1842, the schools had grown to 600 children with eleven mistresses in 1890, when all were placed under one head. The commercial became a higher grade school in 1881, and later a secondary school.

The college was opened in 1847 to inspection by the Education Department. Many additions have been made, and the accommodation has been increased to nearly 200. For many years, Miss Courtts, afterwards Baroness Burdett-Coutts, interested herself in the work of Whitelands, and gave annual prizes for domestic and industrial subjects. Other patrons included Mrs. Tait, the wife of Archbishop Tait; Archdeacon Sinclair; and John Ruskin. The last named founded the May Queen Festival in 1881, and made many gifts to the college of books, pictures, and coins. The chapel was opened in 1882, and from that time successive "years" of seniors have beautified its windows with stained glass representations of saints. The college has also received many gifts of pictures which adorn the day and recreation rooms. At an early date, the excellent education and training obtained by the students created a reputation for the college which it never lost; and, as other colleges for mistresses were established, there was a continual demand for Whitelands' students and mistresses as superintendents and governesses. Others carried the work abroad. Much of the success of the college was due to Miss Gillott (1881-1896) and to her successor, Miss Stanley. Mr. Baber was succeeded as Principal by the Rev. J. P. Fauntleroy, who held the post from 1874 to 1907. In 1907 Miss C. G. Luard was appointed Principal, and was succeeded in 1918 by Miss W. Mercier. The college is under the management of the National Society.

**WHITGIFT GRAMMAR SCHOOL, CROYDON.**— "The School of the Hospital of the Holy Trinity" at Croydon was founded by Archbishop Whitgift in 1596; there is also a large middle school on the same foundation. It flourished considerably up to 1750, after which it declined and almost disappeared; it was brought to life again by the Endowed Schools Commission in 1875, and now in the grammar school there are about 450 boys, of whom a third belong to the Junior or Preparatory Department, which is carried on separately in every way from the Upper School. There are fifteen local entrance scholarships and eight leaving exhibitions. A special division for engineering,

a biological laboratory, and a large cadet corps, are features indicating progress on modern lines.

#### WHITLEY COUNCILS FOR EDUCATION.—

The Whitley Council proposal has, in the opinion of the writer, been taken over by teachers without due consideration of its appropriateness to their own special circumstances.

That in order to ease and perhaps abolish the long conflict between capital and labour the proposal would be made of a kind of Standing Committee, representative in equal numbers of the two rival forces, was to have been expected. And that the third party concerned—the consumer—should be ignored or at least cold-shouldered was not surprising. Lastly, that teachers, in the present state of leadership (or absence of leadership) should conclude that Whitley Councils for Education would assist their professional safety or development was, again, not to be wondered at. Nevertheless there is much doubt whether such a policy is what the nation and the educational profession need.

The balance of the two parties (capital and labour) on a Whitley Council has its justification in the historical enmity of the two. But where is the obvious and avowed "enemy" of the teaching profession? Officials? If so, they should be reformed or abolished, not given seats on a Whitley Council. The lay administrators? If so they, too, should be reformed or abolished. In point of fact, the officials know too much (even if they care little) about education, and the laymen know too little (even if they care much) to be regarded as either friends or enemies of the teachers; the situation, in short, is totally different from that in modern industry, and the creation of Whitley Councils for education would probably do nothing but paralyse still further the already partially paralysed forces of administration.

We would ourselves advocate a more thoroughgoing autonomy for the teaching profession, making that profession definitely responsible for its own efficiency and for the production of certain measurable educational results. But experience shows that no profession can be fully trusted to guarantee efficiency. Certain safeguards are therefore necessary, among which we would mention—

1. Power of veto—rarely, however, to be exercised—by a body of lay "watchmen" appointed by the public.

2. Suggestion Books open to the entries of all persons, lay and professional, interested in education.

3. Statutory Parents' Meetings, at which parents and teachers concerned with any one school can interchange views.

4. A specific statement by teachers of the amount of efficiency, in the measurable subjects, that they will guarantee.

5. Recognition, in connection with non-measurable subjects, of the value and services of the outside enthusiast and specialist—the "charismatic man."

6. The formulation of a professional code of ethics for all educationists.

7. A right of appeal to a transformed Board of Education by any aggrieved body of parents or other persons.

We believe that, with some such safeguards as the above, professional autonomy for teachers might

be possible, desirable, and conducive to efficiency. Under the present system responsibility rests nowhere; the inclusion of teacher members on Education Committees serves no useful purpose except as a doubtful protest against laymen and officials; initiative is paralysed; rapid discussion encouraged. Whitley Councils would probably still further increase these tendencies. What is needed is an administration that is both stronger and more enlightened than we have at present, and this, we believe, may be possible under a system of safeguarded autonomy.

Some of the difficulties and possibilities of educational administration were worked out in the author's *Educational Administration and Criticism* some years before Whitley Councils had been devised. F. H. H.

#### WIDGERY, WILLIAM HENRY (1856-1891).—

Deserves a name in the annals of English education more from his rare promise than from any conspicuous achievement.

Graduating in 1879 as Seventh Senior Optime (a sore disappointment to one who, in spite of a serious break-down in health, had confidently expected to be a high Wrangler), he became for a term an assistant master at Dover College, then second master at the Brewers' Company's School, Tower Hill, and then (in 1883), an assistant master (under Mr. H. W. Léve) at University College School, Gower Street, where he remained till his premature death.

Those few strenuous years show an incomparable record—of zeal for his profession, of ceaseless study of its problems (even in the by-ways of philology and phonetics), of persistent experiment, of holiday congresses and conferences, of countless minor but illuminating writings (articles, lectures, reviews, letters), of an almost passionate preaching, in and out of season, of educational reform; and, with all this, untiring and ungrudging devotion to the trivial round of the class-room and playing-field—so irksome to the teaching "tradesman" (one of his scornful epithets), so fascinating to the "artist in souls," as he loved to proclaim himself.

Of all this splendid service the only material records that remain (except among the buried treasure of forgotten educational journals) are to be found in Mr. W. K. Hill's *W. H. Widgery, Schoolmaster* (Nutt, 1894), a memorable resuscitation of the life-work of an old colleague and friend, and in the Widgery Memorial Library at the Teachers' Guild, of which he was an original member and first hon. librarian.

But there is an imperishable spiritual record—both in the gradual triumph of many of the educational reforms he so persistently championed, and in the legacy from heart to heart of his influence.

Chief among the reforms on which his mind was set were the fuller recognition of education as a science (he even demanded an education tripos), the training and registration of teachers and their consequent inclusion among the learned professions, the regeneration of examinations, the open class-room (he was one of the first to allow visitors), the substitution, for the ordinary boy and girl, of living languages (especially English) for dead, and above all the use in language-teaching of the "direct method" (as it has since come to be called) with phonetic transcriptions.

His proposals under this last head were formulated in a series of vigorous articles in the *Journal*

of *Education* (reprinted as a pamphlet in 1888) and still contain nourishing fare for converted and unconverted alike.

One of the special tasks he had set himself was "to clear the jungle of educational literature," and one of the few personal ambitions he privately cherished was "to write a great book." He might in time have achieved both ends with one and the same stroke, but he died while still engaged in making ready his equipment.

J. R.

**WILDERSPIN, SAMUEL** (1792-1866).—One of the founders of schools for infants in England; was born at Hornsey, in Middlesex. He left his work as a clerk to devote himself to the development of infants' schools. In this work he followed Robert Owen of New Lanark and James Buchanan. The success of the work of Owen in New Lanark led Lord Brougham, Lord Lansdowne, and others to open an infants' school at Brewer's Green in Westminster; and Wilderspin, then clerk of the New Jerusalem Church, Waterloo Road, made the acquaintance of James Buchanan, the first head master of the Westminster School. In 1820, Mr. Joseph Wilson, who had shared in the promotion of the Westminster School, opened another in Spitalfields and, on the recommendation of Buchanan, put it in the charge of Wilderspin. In *Early Discipline*, Wilderspin gives an account of the first attempts of himself and his wife, and their difficulties in conducting the school. He altered Buchanan's methods; drew a distinction between infants' schools and infants' asylums; persuaded the Prime Minister that he was the founder of infants' schools; and got his name placed on the Civil List. He became a good teacher, though a poor organizer, and his zeal gained him the office of superintendent of model schools in Dublin. Finally, he was pensioned by the Government, and retired to Wakefield, Yorkshire. He wrote *On the Importance of Educating the Infant Poor* (1840); *Early Discipline Illustrated* (1832); *A System of Education for the Young* (1840); *A Manual for the Instruction of Young Children* (1845); and *The Infant System* (1852), in which he calls himself the "inventor of the system of infant training." (See also EDUCATION SINCE 1800, GENERAL SURVEY OF.)

**WILKINS, JOHN**.—(See NATURAL PHILOSOPHY, HISTORY OF THE TEACHING OF EXPERIMENTAL.)

**WILL, FREEDOM OF THE**.—Has man free choice of action, even when he is not coerced by others? (1) According to extreme Libertarianism, man is entirely free to choose any one of the alternatives which present themselves to him on any occasion—without regard to his physical or mental constitution. (2) Thoroughgoing Determinism goes to the opposite extreme: it maintains that human conduct is never free, but always completely determined by physical or mental conditions. (3) Midway between these extremes is the view of a limited Freewill, according to which man is partly determined by hereditary dispositions and physical and social circumstances, but within limits can shape his own destiny.

1. Extreme Libertarianism is not much in favour now, although certain tendencies in recent biology and philosophy may appear to encourage it. It over-reaches itself in claiming for man an extravagant freedom that would reduce conduct to

caprice, and make mental endowment and moral character of little account.

2. Thoroughgoing Determinism has had considerable vogue among scientists. Modern Science, under the influence of the classical Mechanics of the eighteenth century, long favoured the view that the world is a complex of elements and forces completely determined by unending laws; that man is just a part of nature; human consciousness only a by-product of physiological processes, and incapable of any kind of initiative. Even Psychology tended to model itself after the mechanical ideal, with sensations for its atoms and association for gravitation. Contemporary science, however, seems to have become cured of this mechanical obsession.

3. The moderate view renders unto Determinism what is due to it, without ignoring the reasonable claims of Freewill. It is probably the view most widely accepted among thinkers, while it is also implicit in the practical attitude of naïve common sense. Our feeling when we consider alternative courses of action; remorse for past behaviour; the fact that society holds us responsible for our conduct—all this tends to favour the view of free choice. But we also make allowances for hereditary tendencies, for the force of circumstances, for overpowering temptations and passions—in mitigation of an individual's responsibility; we plan schemes of education for the express purpose of producing certain habits of mind, forming taste, and building up character; we even try to "re-form" characters by means of different kinds of discipline—all of which presupposes a measure of Determinism in human development. But if human freedom is incomplete—inasmuch as man is subject to hereditary and other influences over which he has no control—human Determinism is incomplete, too. Man, at least, has the freedom to select some of the influences which shall affect him most, to put himself in the way of improving in certain directions. Hence the importance of education, and, above all, of self-education. And if, when once a man's character has matured, his conduct appears to be all the more obviously "determined," namely, by his character, it is just this kind of self-determination that gives the true measure of his freedom, and the value of the character measures the value of its freedom.

A. WOLF.

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#### WILL, THE EDUCATION OF THE.—

The education of the will is often discussed under the general head of the training of character, without much explicit reference to the special problems which the education of the will in the strict sense involves. This treatment of the subject tends to obscure the importance of developing in the boy (or girl, and so elsewhere) the specific power of voluntary decision or choice. Similarly, the schools are apt to rely upon the effects produced upon the boys' characters by the schools' corporate life, the instruction they provide, and the influence of their masters, without attempting definitely to train their boys' wills as such. The excellent results obtained by many schools cannot be questioned for a moment, but it may be suggested that, if these schools employed their present methods with a

more clearly defined intent, new possibilities of achievement would open out before them. If the average school conceived its task of educating its boys' wills with the same precision as that with which it now views the problem of cultivating their intelligence, the whole educational outlook would be changed.

The question to be here considered is how a boy can be encouraged to acquire a habit of effective voluntary decision. The answer to this question can only in vague outline be suggested, but one important principle seems to stand out in clear relief. Our knowledge of the characteristics of an act of will, which has been rendered more definite by recent psychological investigation and experiment, appears to warrant the conclusion that the will is trained primarily by being exercised under appropriate conditions, and not by instruction, though the latter is often of great value.

**The Nature of Willing.** Like other mental processes, the act of willing has three aspects, the conative, affective, and cognitive. Of these aspects the conative is central, and its special characteristics are reflected in the other two. In the experience of willing, we are conscious that we ourselves are the cause or source of our activity. It is our resolution, "I will do this," which, with our consequent action, leads to the attainment of some end selected by ourselves. Obstacles may intervene, but in the act of will these obstacles are neglected or taken as surmountable. Otherwise the act of will is obstructed; we lose confidence in ourselves and cannot whole-heartedly devote ourselves to the realization of our chosen aim. But, secondly, an act of will owes its vigour to the strength of the impulses, emotions, or sentiments which will find satisfaction in the results of the chosen course of action. The emotions are connected with the thought of some end from the attainment of which satisfaction is expected, and are therefore prospective emotions of desire. Thirdly, the end which we resolve to gain must be conceived as not yet realized, but as realizable by or in our own activity.

It follows that a process of mental construction is required, and, if the act of will is to give us permanent satisfaction, this process must be reasonably complete. The end must be viewed in its relations with other ends; we must have adequate knowledge of the results involved in its attainment, and the means by which it can be attained. More particularly, we must think of the achievement of the end as our own act, as part of our own history. We must bring the idea of ourselves as willing the act into relation with our permanent conception of our own character, our interests and ideals. If we deliberate before choosing between different courses of action, "the alternative is not 'this' or 'that' but 'shall I do this?' or 'shall I do that?'" Each line of action with its results is considered not in isolation, but as part of the ideally constructed whole for which the word 'I' stands."

**Training the Will.** This brief analysis of a voluntary act throws light upon the methods by which the boy's will may be trained. The necessary conative, affective, and cognitive dispositions must be developed in combination with each other. Thus it is possible to increase the boy's ability to initiate or determine his own activity by providing him with abundant and appropriate opportunities for the exercise of his will, particularly in practical affairs. In this way will and achievement become inseparably associated. Further, since the boy's

will owes its strength to his emotions and sentiments, the education of his will involves the fostering of his delight in knowledge or in helping others, his devotion to his school, and other more or less permanent systems of emotions. But the emotions here concerned are emotions of desire, depending for their satisfaction partly, at any rate, upon the boy's own efforts. They will, therefore, be developed mainly through the satisfaction of their conative tendencies, not merely by learning about the objects which arouse them. Thirdly, with the growth of his knowledge and power of mental construction, the boy should acquire the habit of due deliberation. He should learn to attend not merely to the momentary advantage of a course of action, but also to its more permanent effect upon his life. Thus his powers of self-control and of resistance to temptation will be strengthened.

Lastly, while special stress will be laid upon the boy's own active experience, no single aspect of the education of the will should be emphasized to the neglect of others. A one-sided insistence upon the conative aspect will tend to make the boy obstinate and headstrong; the exaltation of the affective aspect will encourage him to be impulsive and sentimental; concentration upon the cognitive aspect will help to make him an ineffective Hamlet. It is the whole boy that must be trained to be a self-directing agent. H. B. S.

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#### WILLIAM OF OCKHAM.—(See SCHOLASTICISM.)

**WILLIAM OF WYKEHAM AS AN EDUCATIONAL REFORMER.**—The circumstances of Wykeham's own life and of the age in which he lived combined to fix his mind on education, and to make him an educational reformer. Brought up in humble, though not apparently in straitened circumstances, he received his education, such as it was (as Bishop Lowth thinks, through the generosity of a patron), at the ancient Winchester Grammar School, as a boarder or semi-boarder. It was to the education which he received in the school at Winchester that he owed his start and his subsequent success in life. That education fitted him at an early age to enter into the service of Nicholas Uvedale—Lord of the Manor of Wykeham and Governor or Constable of Winchester Castle—as a notary or secretary. From that service he was transferred at the end of two or three years into that of King Edward III, no doubt on the recommendation of the constable. Arrived in that position, he rose rapidly; but it was to his practical ability, his skill as architect, surveyor, and manager of estates, and not to high intellectual training, that he owed his advance; it was, moreover, of practical ability and not of any great intellectual cultivation or power, that he gave in his subsequent career such ample proof. Indeed there is a tradition, not accepted by Bishop Lowth, but long current, that the Pope, who certainly did not expedite

Wykeham's appointment to the See of Winchester, used his want of acquaintance with classical learning as an argument against confirming him in the Bishopric, and is even said to have made him submit to the humiliation of an examination before he would confirm him in it. The story may be mythical, but Wykeham had certainly not the reputation among his contemporaries of being a specially learned man, and may have wished to relieve others from a disability from which he was conscious of having suffered himself. This, I think, was one motive which probably tended to make him an educational reformer.

The second motive was furnished by the necessities of the time. The outbreaks of the plague, called the Black Death, which extended from 1340 to 1369 and even later, thus covering the middle portion of Wykeham's career, while they swept away a large proportion of the population of England, fell with special violence upon the clergy. To supply the dearth of clergy (*i.e.* of all the learned professions) thus caused, recourse had to be had either to the monks or friars, or to illiterate men drawn from the villeins, the quite humble classes of the community. Neither expedient approved itself to Wykeham. He does not seem to have approved of monks, partly because the monks and friars had done their work and were beginning to fall into contempt and disrepute; partly, perhaps, he, as a great supporter of the National Church, objected to them as being under the immediate control of the Pope and as international in character. On the other hand he felt that an unlearned clergy, a clergy "unable to read, much less to understand" (as they are described in one of the contemporary chronicles), was harmful alike to the clerical order and to the interest of true religion in the country at large.

**New College, Oxford.** The object of the foundation of New College was to supply the want of a clergy, and to supply it in the best possible way, by creating a body of secular clerks at once numerous and learned. This Wykeham sets forth in the forefront of his statutes for New College as the object he had in view in creating that great foundation, which was to be a secular college for secular priests. The idea of a college was not a new one. Merton had been founded a century before, Oriel and Queen's had followed it, and Balliol, University, and Exeter, though of a somewhat different type, were also in existence. What was peculiar in New College was the size and munificence of the foundation; a great effort was to be made in it to meet a great need. The novelty of the conception, as Wykeham embodied it and carried it out, is typified by the name which has attached to his College almost since its foundation; it is pre-eminently the "New College," a college which marks a fresh start and was on a different scale from all that had preceded it. The increased scale exhibited itself in various directions, in the munificence of the endowment, in the extent and splendour of the buildings, in the number of the scholars, and in the size of the library with which Wykeham furnished it.

But not only had Wykeham in his mind to found a large and stately and impressive college, he had also greatly at heart that it should contain a body of learned students. So he took much pains in prescribing the direction, and providing for the thoroughness, of the studies of his scholars. Of the seventy scholars of whom the foundation

consisted, the great majority, fifty in all, were to study first arts and then theology and philosophy—philosophy as well as theology. But of these fifty, two were allowed, at a certain period of their work, to study medicine, and two more astronomy. The remaining twenty might be lawyers; ten if possible, students of canon and ten of civil law. It would seem, therefore, that Wykeham had, for his time, a wide conception of learning. While theology, as was natural for one who wished to produce a body of learned secular priests, was to be the predominant study, other branches of learning were not neglected, the provision about the study of medicine and astronomy being specially liberal for the time.

Another particular in which Wykeham showed himself an educational reformer was the provision he made for the instruction of his scholars at New College. He has been described as the inventor of the Tutorial system, for he ordained that instruction was to be given to the younger scholars, supplemental to that which they received in the public lectures and disputations of the schools, by certain of the senior fellows, who "drew in return an additional allowance from the College funds, besides what they may have received from individual pupils." Into the vexed question of Wykeham's intention in securing for the Fellows of his College leave to be admitted to their degrees without any "grace" of Convocation, it is not needful here to enter, though I am inclined to agree with Dr. Rashdall that its intention was to raise and not to lower the standard of attainment among the Fellows.

**Winchester College.** In his foundation of Winchester College, Wykeham was more of an innovator and reformer than he was in the foundation of New College. While New College and its scholars were his principal aim, and Winchester was primarily intended to keep up the supply and quality of the scholars at the former, the latter was from the first an independent foundation, situated at a distance from Oxford. As early as the foundation of Merton, boys, at first relatives of the founder, formed part of, or were attached to, the foundation, but the boys lived in the College or its immediate neighbourhood. At Queen's College again, twelve poor boys at first, a larger number subsequently, were to be educated as part of the foundation, but they again lived in, or close to the College; but Winchester College was the first foundation for the purely grammatical education of boys which had ever been established out of connection with either a cathedral or a university. While the fellowships at New College were to be filled up by competitive examination from among the scholars of Winchester, no similar provision exists in the case of the scholars into Winchester, but the scholars there were to be "poor and needy, of good character and well conditioned, of gentlemanly habits, able for school, completely learned in reading, plainsong, and old Donatus." In both cases founder's kin were to have certain rights of preference. In modern language, while the scholars of New College were to be elected by "open competition," those into Winchester were to be chosen by the electors after "a qualifying examination." The provision seems in itself a reasonable one, but in practice it did not work well, as a very elaborate system of nominations grew up, which did harm both to Winchester and New College. It is to be observed that Wykeham intended from the first that his scholars for



Winchester should be chosen from a wide field. He gave a preference to certain counties, but these were widely scattered, and, as a matter of fact, the scholars were in early days chosen from all parts of England, though the greater part of them, as was natural, came from Hampshire and the other southern counties.

Nor was it only in the conception of the school as an independent foundation governed by a warden and fellows of its own that Wykeham was an innovator; he was so also in the character of the school that he founded. The seventy scholars were to be all boarders and lodged in the College. This fact, together with the number of scholars it included, made it a departure from all previous precedent. Novel, too, was the principle which Wykeham introduced that the boys were to some extent to govern themselves, the older boys or "prefects" ruling the younger or "inferiors." But the greatest change which he made, and that which entitled him to be regarded as the founder of the public schools of England, is the provision that a certain number of Commoners might be added to the College to be educated side by side with the scholars. The clause of the statutes, which admits of this, runs as follows: "We allow, however, some of noble and powerful persons, special friends of the said College, to be instructed and informed in grammar within the said College, without charge to the College, so that by occasion thereof prejudice, loss or scandal in no wise arise to the warden, priests, scholars, clerks, or any of the servants of the same." Only ten commoners were in the first instance to be admitted, but they grew subsequently, and, as the example was followed at Eton, the "public school" system of England was by this provision permanently instituted.

In the matter of the "curriculum," as it would now be called, Wykeham was not an innovator. The school was to be a grammar school, and the course prescribed and followed was the regular course of grammar, dialectic and rhetoric, such as prevailed in other grammar schools throughout the country. Only in one particular did he make a change, he allowed his scholars to translate their Latin books into English instead of French, a proof, if one were needed, of the national turn of his mind. The care that he took that his scholars should be instructed in music, so far, at any rate, as to be able to chant the plainsong, is, perhaps, also characteristic.

To sum up, while it is open to question how far Wykeham succeeded in his aim of producing at his College at Oxford a marked improvement in the number of learned secular priests (though some of those most distinguished in the "new learning," as well as the most learned adherents of the old, were to be found among the members of his foundation), there can be no doubt that he was in a very real sense the author of the peculiarly English institution of "public schools." W. A. S.

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**WILLIAMS'S (DR.) LIBRARY**, Gordon Square.—(See LIBRARIES IN THE EIGHTEENTH CENTURY.)

**WILLOW-WORK**.—(See BASKET-WORK, THE TEACHING OF.)

**WILSON, THOMAS** (1525-1581).—He was educated at King's College, Cambridge, where also he became provost in 1548, and came under the influence of the new Greek learning. He was intimate with Ascham, and became tutor to two sons of the Duchess of Suffolk. In 1553 he published *Arte of Rhetorique*, which is described by Wharton as "the first system of criticism in our language," and consists of a system of rhetoric, not original, but mainly drawn from Aristotle, Cicero, and Quintilian. This work stimulated English prose, and it has been maintained that Shakespeare owed something to a study of it. In Elizabeth's reign, Wilson spent many years in duties connected with State affairs, including embassies to the Netherlands and the office of Secretary of State. About 1569 he translated three orations of Demosthenes to rouse national resistance to Spain.

**WIMPHILING, JAKOB** (1450-1528).—He was born, and also died, at Schlettstadt. He belonged to a poor family, and his education was obtained with difficulty and interruption at Fribourg, Erfurt, and Heidelberg. He took a degree in theology in 1483, and accepted employment as cathedral preacher at Speyer (Spire); but, finding the work beyond his power, he tried to abandon it. The bishop induced him to continue, and he retained the post for fourteen years. His own tastes led him towards retirement and study, and in 1449 he obtained the Chair founded at Heidelberg for the teaching of Elocution, Poetry, and the Greek Language. He left Heidelberg in 1502, and, after holding for a short time a benefice at Strassburg, he undertook the education of some young men and, later, the management of a convent for girls at Basel. After many unsuccessful attempts to retire from the world, he finally returned to his native village, where he spent his remaining years with his sister. Wimpfeling wrote voluminously, though in a cramped style, on Education, History, and the Church. He attacked vigorously the vices of the time, and endeavoured to secure reform in public morals and in the Church. His *Adolescentia* (1492), a collection of pedagogical rules, gives his theory of education, in which moral teaching occupies a prominent place. His *Isodoneus Germanicus* is a book of instruction and advice to teachers of Latin, in which he deprecates the excessive teaching of grammar to the exclusion of other branches of learning. He advocates the training of the will as well as that of the intellect, and the careful selection of books for reading. He also wrote *Epitome rerum Germanicarum*, a history of Germany; *De vita et moribus episcoporum et principum*, on the corruptions of Church and State; and several dramatic pieces.

**WINCHESTER COLLEGE**.—Long before the Norman Conquest there was a grammar school in Winchester under the care of the monks of St. Swithin's Priory. It is said that King Alfred was educated there; it is probable that he sent his youngest son to the school (c. 893); and certainly Aelfric, the grammarian, seems to have learned his

Latin there (*c.* 950). Bishop Henry de Blois, brother of King Stephen, provided daily at St. Cross Hospital, which he founded, dinner for thirteen poor scholars from the high school. About 1330, William of Wykeham (*q.v.*) went to school at Winchester. Before he began to found New College in 1369, he was evidently supporting seventy scholars in a school there; it is reasonable to suppose that these boys had been placed in his own old seminary, and no doubt this ancient grammar school was partly incorporated in "Seinte Marie College of Wynchestre," which he founded by charter on 20th October, 1382. Nine years before, he had made a ten years' contract with Richard de Herton, grammarian, to teach the scholars, providing him with an usher. The new school was preparatory to New College, whither the scholars proceeded at the end of their training. This association of school and college in different places was a novelty; the common connection of the time was for school and college to form two branches of the same institution. The advantages of the new arrangement mark the first step in the development of the public schools of England. For, as the two establishments were entirely distinct, besides the scholars, "sons of noble or powerful persons" began to be admitted as *commensales*; beginning with ten, by 1412 there were upwards of 100 of these "strangers." The scholars were, as usual, "poor and needy," but the degree of their poverty is fairly indicated by the oath which they took that their circumstances did not permit them to spend more than 5 marks a year—a sum equal to £100 of our money. This makes it clear that Wykeham did not design his foundation as a charity school for the proletariat. Though he was sufficiently democratic to deprecate discussions as to the nobility (*i.e.* gentility) of his scholars, he obviously meant to draw them from the more intelligent and gently-nurtured of the population. The first great head master was William of Waynflete (*q.v.*), who afterwards organized Eton, founded Magdalen, and became Bishop of Winchester. The curriculum was divinity and "grammaticals," the latter subject covering not merely the "art of grammar," but a very thorough and fluent knowledge of Latin. Later, Greek was added. The literature was not quite what we find now read at school; considerable stress was laid on Terence, no doubt because of the importance of colloquial Latin as an international language. Winchester and Eton were regarded as colleges of the universities, and, far from being injured by the Reformation of Henry VIII, the former actually profited by the dissolution of the monasteries. The beautiful playing-field, Meads, was enlarged; and the Sustrin Spital was added to the school buildings, becoming ultimately "Commoners," the head master's boarding-house. In 1630 a quarrel between the head master and the second master led to the latter's opening a rival establishment in the city, with a number of the younger boys. Thereafter, town boys were refused admission to the college, and the three lowest forms ceased to exist. Charles II was extremely fond of Winchester; the barracks were originally the beginnings of a great palace for him. The number and social condition of the commoners rose greatly. Under Dr. Burton in 1734, the school contained 204 boys, including ten noblemen. Burton stayed too long, and the school declined; but Joseph Warton, the poet, and Dr. Goddard restored it to its former

size, though discipline became weak. Under Gabel there was a great rebellion, put down by soldiers. Scholarship was at a low ebb, also, owing to a pernicious system of election without competition. A boy was given a scholarship at Winchester; he went on automatically to New College, became a Fellow in due course, and received his degree without examination. Naturally, this did not tend to the advancement of learning. In 1846, an outbreak of scarlet fever in "Commoners" injured the school greatly, yet not till 1861 was the system of separate boarding-houses adopted. There are now eleven houses of thirty-eight boys each, besides the seventy scholars. Mathematics, modern languages, and science are taught, in addition to classics, and there is an Army class. Athletics flourish, especially cricket; there is an annual match against Eton. The school has a peculiar football game of its own. Many great names adorn its past: the poets Collins and Young; Dr. Arnold of Rugby; Sir Thomas Browne; Lord Sherbrooke; the saintly Bishop Ken; and Lemprière, the classical dictionary-writer, are a few that occur to the memory.

#### WINCH'S TESTS OF INTELLIGENCE IN SCHOOL CHILDREN.—(See TESTS.)

**WINCHESTER DIOCESAN TRAINING COLLEGE.**—This was founded by the Diocesan Board of Education, in 1840, to prepare young men for the work of teaching in elementary schools. The first students were accommodated in a house in St. Swithun's Street, in the city; and the institution was recognized in 1852 by the Committee of Council on Education. The number of students steadily increased and outgrew the accommodation in St. Swithun's Street, so the Bishop of Winchester (Dr. Sumner) placed at the disposal of the college committee the former residence of the bishops, Wolvesey Palace. In 1862 a new college was opened on high ground overlooking the city. The Prime Minister (Lord Palmerston) took part in the opening ceremony. The chapel, a memorial to Bishop Utterton of Guildford, was opened in 1881, as well as additions including chemical and physical laboratories, common room, library, gymnasium, and armoury. A large house, "St. Swithun's Lodge," standing in two acres of ground adjoining the college has been acquired as an Annexe so that the college, will now accommodate one hundred resident students.

Candidates are admitted in accordance with the regulations of the Board of Education. They are prepared for the Board's Final Certificate examinations and also for the London Degrees B.A. and B.Sc.

**WINKELSCHULE.**—These were, as the name implies, secret, clandestine, or unauthorized schools. In the early Middle Ages, when schools and teachers were licensed and authorized by ecclesiastical and other rules, this name was given in Germany to private schools conducted by unlicensed teachers. They were common from the fourteenth century, and competed with the grammar schools by supplying a demand among the poor for education in the more elementary subjects. Low fees were charged, and the teachers were not generally men of university education, but drawn from many ranks of society. As towns grew, industries spread, and populations increased, these unlicensed schools

became very numerous in France and England, as well as in Germany, and became the object of penal laws and persecution. Many other names of contempt were applied to them, as "hedge-schools" in Ireland. After the Reformation, many Protestant schools were of this kind, such as the Huguenot schools in France, which were often hidden away in secluded parts of the forests.

**WITTENBERG, UNIVERSITY OF.**—This was founded by the Emperor Maximilian I in 1502, and soon became famous in connection with Reformation controversies. Luther came to Wittenberg in 1508, and lectured on the *Dialectics* and *Physics* of Aristotle; and in 1517 he nailed his declaration against Papal Indulgences to the door of the Castle Church in the city. Melancthon, the great German humanist teacher, came to Wittenberg in 1518, and established the humanist system there. Throughout Reformation times, Wittenberg University held a high position, but gradually declined in the seventeenth century. It was incorporated with Halle University in 1815, and removed to Halle (*q.v.*).

**WOLF, AUGUST.**—(See CLASSICAL LEARNING AND SCHOLARSHIP.)

**WOLSEY, THOMAS (1471-1530) [CARDINAL].**—He was born in Ipswich. In his eleventh year he was sent to Magdalen College, Oxford, and at the age of 15 he took the degree of Bachelor of Arts. His favourite study was the philosophy of Thomas Aquinas. He remained at Oxford as a Fellow of Magdalen and a master of the school attached to the college, until in 1500 the Marquis of Dorset gave him the living of Limington in Somerset. His association with the Court of Henry VII began in 1506, and his greatness commenced with the accession of Henry VIII. From 1511 to 1530 he controlled both the foreign and the home policy of Henry's government, and on his fall he had so many enemies that "no statesman of such eminence ever died less lamented" (Brewer). His zeal for learning was the redeeming feature of his character. He founded Cardinal College, Oxford (1525), on the suppression of St. Frideswide's Priory. This college was afterwards remodelled by Henry VIII as Christ Church. The hall and kitchen are Wolsey's work, and surpass all other like buildings in Oxford. He also commenced the great quadrangle. He planned a college at Ipswich, but failed to carry out his project.

**WOMEN IN ENGLAND, HISTORY OF MEDICAL EDUCATION OF.**—The Medical Act, 1858, with the full title, "An Act to Regulate the Qualification of Practitioners in Medicine and Surgery," was the first under which a Register was prepared of all persons duly qualified to practise according to the provisions of the Act.

The General Council brought into being by the Act was empowered to dispense with some of its provisions in favour—besides others specified—of persons practising medicine or surgery within the United Kingdom, before the passing of the Act, on foreign or colonial diplomas or degrees.

Dr. Elizabeth Blackwell, a lady of English parentage, had taken the degree of M.D. in the University of Geneva, U.S.A., in 1849, and settled in practice in England. By virtue of the provision above quoted, Dr. Blackwell's name was entered on the Register.

The first woman who actually took a British qualification was Miss Elizabeth Garrett, better known as Mrs. Garrett Anderson. In 1865, Mrs. Anderson entered for and passed the final examination for the Diploma of the Society of Apothecaries, that being a medical qualification the regulations for which did not—at that time—require that the course of study should have been taken at one of the recognized medical schools. Subsequently the Society had its charter altered in this particular, and thus prevented other women from entering the profession in the footsteps of Mrs. Anderson. Mrs. Anderson took the M.D. degree of the University of Paris in 1870, that university being years ahead of any British university in its readiness to examine women in the Faculty of Medicine.

The first combined effort to open a regular course of medical education to women was made in Edinburgh by a band of five women, led by Miss Sophia Jex-Blake. From 1869 to 1874 these five women (later increased to twelve) tried to prevail on the Senate of the university of Edinburgh either to open to them courses of study in the university, or to accept certificates for courses arranged for women separately. After much time and money had been spent, the university finally decided against the admission of women to degree examinations. The women left Edinburgh early in 1874: some went abroad for further study; others, notably Miss Jex-Blake and Mrs. Thorne, determined to try what could be done in London.

**The First School of Medicine for Women in England.** At that time, 1874, no examination qualifying for admission to the Medical Register was open to women, and none of the medical schools would admit them to courses of study. In a *Sketch of the Foundation and Development of the London School of Medicine for Women*, Mrs. Thorne tells how Miss Jex-Blake gathered together a band of sympathizers, who worked with the idea "that, if full courses of study were provided, the lecturers being recognized teachers at metropolitan medical schools, one or other of the nineteen examining boards would accept their certificates from women as well as men students." Mrs. Thorne herself never qualified, but gave time, money, and untiring interest to the School of Medicine for Women then founded. A Provisional Council was formed; thirteen contributors, each giving £100, enabled it to buy the lease of an old house and garden in Henrietta (later named Handel) Street, Brunswick Square; the Edinburgh Committee gave the apparatus that had been bought for the courses for women there—and thus the first School of Medicine for Women came into being. Such well-known people as Charles Darwin, Professor Huxley, Lady Stanley of Alderley, and the Earl of Shaftesbury were among the governors; and the staffs of St. Mary's, University College, and Westminster Hospitals contributed four, three, and two members respectively, and of Guy's, Middlesex, and Charing Cross, one each, to the first set of lecturers. Dr. Elizabeth Garrett Anderson, who lectured in Midwifery, was the only teacher not already recognized by the Colleges of Physicians and Surgeons. The School opened on 12th October, 1874, with fourteen students, and before the end of its first year of existence the number had increased to twenty-three.

**The Opening of Medical Examinations to Women.** On 11th August, 1876, a short Act of Parliament was passed, entitled "AN ACT TO REMOVE RESTRICTIONS ON THE GRANTING OF QUALIFICATIONS, FOR

REGISTRATION UNDER THE MEDICAL ACT ON THE GROUND OF SEX." Parliament thus made smooth a way for universities or examining boards, but no one of them ventured upon it till the following year, the King's and Queen's College of Physicians of Ireland being the first to take this step. In that year, 1877, Mrs. Atkins, Dr. Eliza Walker-Dunbar, Dr. Edith Pechey, Dr. Sophia Jex-Blake, and others took the final examinations of that College and were placed on the Medical Register. These women had done their clinical work either during the years of struggle in Edinburgh or in the hospitals of Paris, Bonn, or Zurich, for up to that time the London School of Medicine for Women had had no hospital course for its students. This difficulty was solved in 1877, when, through the influence of Mr. James Hopgood, Chairman of the Board of the Royal Free Hospital, an agreement was signed admitting students of the School to the wards of that hospital.

**London Degrees Thrown Open.** In 1878 a Supplemental Charter was granted to the University of London, by which—

"All the powers and provisions relating to the granting of degrees and certificates of proficiency contained in Our said recited Letters of the sixth of January in the twenty-sixth year of Our Reign shall henceforth be read and construed as applying to women as well as to men."

The University of London has, therefore, the distinction of being the first in the kingdom to grant degrees to women; and when this university was re-constituted in 1898, the London (Royal Free Hospital) School of Medicine for Women became one of the twelve "Schools of the University in the Faculty of Medicine."

Candidates for the London degrees had to begin at matriculation, and it was not till 1882 that the first women, Mary Dacomb Scharlieb and Edith Shove, took the final examination for the degree of Bachelor of Medicine. Mrs. Scharlieb obtained the Gold Medal in Obstetrics and Honours in Medicine and Forensic Medicine, and Miss Shove Honours in Obstetrics; and in the years that have followed, there are few honours or distinctions in the University obtainable by examination which have not at one time or another been awarded to women students.

**Other Universities and Colleges.** The Royal University of Ireland, constituted in 1880, was, like the University of London at that time, an examining and degree-giving body only, and its examinations were open to women; but, for students whose only available school was in London, the journey to Ireland for all examinations was a serious obstacle. Before long, the men's schools in Ireland began to admit women. In 1885 the Royal College of Surgeons, Ireland, opened its examinations to women, admitting them at the same time to its school.

The Licentiatehips of the College of Physicians and Surgeons of Edinburgh were made available to women in 1886, in which year Dr. Sophia Jex-Blake founded the Edinburgh School of Medicine for Women, which carried on its work till the end of 1916, when the admission of women to the medical courses of the University itself led the authorities of the School to consider its continued existence unnecessary.

In 1892, Scottish universities were empowered to admit women to instruction and graduation in the several faculties. All four took advantage of

the ordinance to some extent. Aberdeen at once sanctioned their admission both to graduation and to courses of instruction. Edinburgh opened its degrees, but the medical courses provided by the University were not made available to women till the end of 1916. Glasgow opened its degrees and made Queen Margaret College for Women an integral part of the University.

The University of St. Andrews took advantage of the ordinance by a resolution "to make provision within the University for the instruction of women in the ordinary classes"; but, as there was at that time no complete medical school in the University, full provision for graduation in Medicine was not made till the year 1897.

The degrees of the Durham University, "excepting only degrees in Divinity," were opened to women in 1895; those of Manchester University in 1899. The degrees of the University of Birmingham, founded in 1900, Liverpool (1903), Leeds and Sheffield (1905), and Bristol (1909) have, from the outset, been open to women.

In January, 1904, Trinity College (Dublin University) was authorized to grant degrees to women, and since October of that year all the general and special hospitals in Dublin have been open to women students, who are also eligible for hospital posts after qualification.

The Royal College of Physicians, London, and the Royal College of Surgeons, England, which had by a small majority refused a well-supported petition in 1895, were again addressed in 1908, and in response they opened all their examinations to women on the same terms as to men.

In 1920 Oxford allowed women to take their degrees, so that at the present time all the examinations of those bodies which grant diplomas, qualifying their holders to practise medicine, are open to women, as are the degrees in Medicine of all the Universities in the kingdom, with the exception of those of Cambridge.

**Medical Women.** The Medical Directory for 1917 contains the names of nearly 1,300 women. An inquiry made by the General Medical Council shows that in January, 1917, 1,735 women were studying Medicine in the kingdom, so that during the five years ending 1921, a far larger number of women will have qualified than in the fifty preceding years during which opportunities for the study of medicine have gradually been made available to them, and their total number will be such that at least one in fifteen of the practitioners on the Register will be women.

L. B. A.-B.

**WOMEN IN THE MIDDLE AGES, THE EDUCATION OF.**—The education received by mediaeval girls falls naturally into two divisions, the education given in convents (whether to the nuns themselves or to lay boarders) and secular education.

**Convent Education.** (a) FOR NUNS. During the early Middle Ages (from the sixth to the twelfth centuries) the standard of education in monastic houses was high; it is only necessary to mention St. Radegund of Poitiers in the sixth century, St. Berthild of Chelles, and St. Gertrude of Nivelles, whose abbeys were famous for their learning. In England the golden age of education in the nunneries seems to have been the seventh and eighth centuries, if we may judge from the account of the learned nuns of Barking given by Aldhelm (709) in his treatise *De Laudibus Virginitatis*, and from the lengthy correspondence which passed in

the next century between St. Boniface and various Anglo-Saxon nuns. In the ninth and tenth centuries, learning flourished, particularly in the Carolingian foundations in Saxony, where Quedlinburg and Gandersheim were seats of classical learning; the most famous inmate of Gandersheim was the authoress Roswitha (born c. 932). In the twelfth century, Fontevrault in France, and Hohenburg in Germany, were centres of culture; and it was at Hohenburg that the abbess Herrad wrote a great encyclopaedia, the *Hortus Deliciarum*, which embraced all branches of knowledge. It is true that women such as Roswitha and Herrad possessed genius as well as learning, and can hardly be regarded as typical of the mediaeval nun; but the wide range of their knowledge was dependent upon the extent of their convent libraries, and these were equally at the disposal of their fellow nuns. Moreover, the general descriptions of nunnery education, which date from the golden age of monasticism, bear out the impression that, at least in the larger houses, the general standard of knowledge was high. The rule of Caesarius of Arles in the sixth century recommends that the nuns *omnes litteras discant*, and Aldhelm gives an impressive picture of the nuns of Barking "collecting material for study everywhere like bees." The principal objects of study were reading, writing, singing, probably arithmetic, certainly the elements of grammar and of verse. The nuns also engaged in the copying and illumination of manuscripts and in textile industries.

From the thirteenth century onwards, however, monastic education began everywhere to decline, and the nunneries suffered more quickly and more completely from the reaction than did the communities of men. There were exceptions: the convent of Helfta, in Saxony, was throughout the second half of the thirteenth century a centre of education and of those mystical tendencies which were characteristic of the age; but it remains true to say that, from the thirteenth to the fifteenth centuries, the standard of education in the nunneries became steadily lower. In the thirteenth century, Gautier de Coincy wrote his *Miracles of Our Lady* in French, because the French nuns for whom he wrote did not understand Latin. In England it became customary in the next century for bishops to translate into French their injunctions to the nunneries, while those addressed to monks continued to be written in Latin. In the fifteenth century the knowledge of French also began to disappear, and the injunctions to nunneries were often written in English, and were almost always ordered to be read aloud in the vulgar tongue. Religious works were translated to meet the ignorance of the nuns; and learning, which reached a very low ebb in the houses of monks, disappeared almost entirely in the nunneries. A minimum of culture (embracing reading and singing) continued to be demanded of the nun, but apart from this she was probably little better educated than her sister in the world.

(b) FOR SECULAR PUPILS. It is certain that, from an early date, the nuns took as boarders girls who were not destined for the religious life; but the extent to which the practice prevailed has been exaggerated. It was from the beginning frowned upon by ecclesiastical authorities, on the ground that it tended to promote worldliness and to destroy discipline, and as early as the sixth century the rule of Caesarius of Arles forbade it.

From the thirteenth century onwards, the records of episcopal visitations are full of articles ordering the ejection of secular school children, and it is clear that the practice was regarded as a breach of the rule, and a danger to religious life. Nevertheless, in the end, the authorities were obliged to recognize it within limitations; the nunneries were growing steadily poorer, and the reception of school children, like the reception of adult boarders and the demand for a dowry with newly-professed nuns (practices similarly condemned and in the end condoned), was simply a device to mend their finances. In England, by the fifteenth century, the bishops were content to allow the nuns to keep girls under 10 or 12 and boys under 6 or 8. It is probable that the practice differed in different districts; in many places (especially in the north) the nunneries seem regularly to have acted as schools; but the records of many other houses make no mention at all of children. In any case, it appears certain that the nunnery schools were as essentially aristocratic as the nunneries themselves, and that the only girls who received their education in this way were those who could afford to pay for it; nor is there any reason to suppose that the nuns ever took day pupils. The kind of education given depended, of course, upon the intellectual condition of different nunneries at different times. In the early Middle Ages it must have been good; a ninth-century life of Harlind and Reinhild gives a wide syllabus of subjects taught to lay pupils in a convent in the Low Countries, and Héloïse received her early education in a nunnery. But during the last centuries the nuns themselves must often have been too ignorant to teach more than a mere smattering of reading and singing, with perhaps needlework.

**Secular Education.** (1) COURTLY EDUCATION. During the twelfth and thirteenth centuries, there was developed a new kind of education for women—the courteous worldly education given at home to great ladies, and later to the gentry and richer *bourgeoisie*. What this education was may be gathered partly from the indirect evidence of romances, partly from the didactic works addressed to women, which exist in large numbers from the thirteenth century onwards. These may be divided into two classes: the poems and treatises dealing with courtly love, and the more serious moral works. The former are usually earlier in date, and are often of French origin; the most famous are perhaps Jacques d'Amiens' *L'Art d'Amors* and Robert de Blois's *Le Chastoiement des Dames*, both of which belong to the thirteenth century. They are influenced sometimes by the purer poetry of the Troubadors, but more often by the unconcealed sensuality of Ovid's *Ars Amandi*; and their sole purpose is to render woman a pleasing object to man. They always contain minute advice as to the care and adornment of the person, the proper deportment for a lady at table and in the street, and the right way to play the complicated game of courtly love. In spite of their levity and superficiality, and of the inevitable *arrière pensée*, they leave the impression of a polish in manners in striking contrast to their low standard of morals. The serious didactic works of the later Middle Ages are, from a pedagogic point of view, more interesting. The most notable are Philippe de Noivair's *Des quatre tens d'aage d'ome*; Francesco da Barberino's *Del Reggimento e Costumi di Donna*; the treatises of the Chevalier de la Tour Landry

and of the *Menagier de Paris*, and Christine de Pisan's *Liure des trois Vertus* (in her *Cité des Dames*). These works have a real educational value, but they agree with the exponents of courtly love in one idea, that of the relativity of woman to man, and the subordination of her education to that principle. The courtly writers desire to make of her a good mistress, and the moral writers a good wife; but an education which shall make of her a good woman, an individual to correspond with the ideal of a good man set out in similar treatises addressed to boys, is never contemplated by mediaeval writers, save by the thirteenth-century legist Pierre Du Bois, and by the fifteenth-century poetess Christine de Pisan. Pierre Du Bois is indeed more advanced than many modern educationists; of his treatise *De Recuperatione Terrae Sanctae* it has been said that it contains everything, even the new woman. He wished to suppress the nunneries and to use their revenues to endow large colleges in which women were to be educated to be man's equal in all the arts of peace. But Jacques d'Amiens and Philippe de Novaire were better representatives of their age. How far the two accepted ideals of education, the good mistress and the good wife, comprised intellectual education it is difficult to say. The courtly writers seem to presuppose that women can read and write, if only to read and write love letters; and represent them as reading romances, songs, fabliaux, and able to sing and to play upon harp or viol; and the romances bear out this view of courtly education. But it is curious that, when the education of women begins to be taken more seriously, in the later works, a doubt appears as to whether they should have any learning in letters, though an exception is always made in the case of nuns. Francesco da Barberino will allow a noble girl to read and write, so that she may be able to govern her estates when she grows up; as to the daughters of esquires, judges, doctors, and other gentlemen, he debates for some time, and decides that it is better for them not to learn reading and writing; while he forbids the daughters of merchants and artisans to have any learning. Philippe de Novaire categorically forbids women to read or write, and the Chevalier de la Tour Landry will have them read only.

Such learning as was possessed by mediaeval ladies, if not acquired in a nunnery, would be obtained from a private tutor, or more commonly by means of the practice of sending them into a nobleman's household for their education. The romances often represent girls as learning breeding in the train of some great chatelaine, and the *Paston Letters* show the same practice to have been prevalent among the English gentry. It is probable that, in spite of the frivolity which characterized much of the education of women in the Middle Ages, the women of the upper classes were often able to read and write and possessed a modicum of culture. But it is difficult to obtain information sufficient to justify a general conclusion.

(2) **ELEMENTARY EDUCATION IN SCHOOLS.** There is no evidence that girls ever attended the grammar schools which existed for boys in the Middle Ages; but, on the other hand, it is clear that there were in existence elementary schools for both sexes. At Paris, the *petites écoles* under the government of the Cantor of Notre Dame comprised schools for girls as well as for boys; and, in 1380, twenty-one schoolmistresses were registered among the masters. The rules drawn up in 1351 contain a regulation

against co-education, a practice which had always been steadily opposed by the Church; as early as the ninth century it was forbidden to admit girls to the boys' schools which sprang up at the Carolingian Renaissance. But the custom was not easily eradicated, if we are to judge from the constant repetition of the prohibition. Even in the nunneries, little boys were sometimes boarded and taught with girls, and girls undoubtedly found their way into the elementary schools for boys when no separate school existed for them. The famous statute of 1405-1406 would seem to show that there was some elementary teaching for girls in England—though it may be merely the expression of a pious wish: "Every man or woman, of what state or condition that he be, shall be free to set their son or daughter to take learning at any school that pleases them within the realm." It is not clear whether the schools mentioned here were co-educational, though the wording of a passage in the *Ancrer Riwele* suggests that, sometimes at least, girls went to boys' schools. A Chancery petition of 1480 shows that a girl of 7 had been attending an elementary school of thirty children (which may or may not have been a mixed school) kept by an old priest. In Germany, elementary schools for girls were widespread during the fifteenth century; at Emmerich, in 1445, a compact was sealed between the town and the chapter, in which the former claimed the right to elect "one, two, or, when necessary, even more women as teachers for the girls," and to present them to the chapter; at Venlo the civic accounts of 1457 record the building of a new school, and the lodging of the children in two different apartments, one of which was called the *meeghden schole*; and girls' schools and women teachers are mentioned in many other towns. In spite, however, of much evidence for the existence of these schools, elementary education cannot have been universally procurable, and the class which benefited by it was doubtless the *petite bourgeoisie* rather than the poorest class of all. Nor is it likely that the curriculum was a wide one. The names of the *magistrae scholarum* of Paris show them to have been drawn from the class of small shopkeepers; and it is probable that they taught good behaviour rather than learning, and were themselves not better instructed than the old ladies who kept the dame schools of a later age. A diploma granted to one of them in 1484 bids her instruct the girls in good manners and in *litteris grammaticalibus ac aliis licitis et honestis*; they probably taught the alphabet and the catechism and other religious knowledge. In the English priest's school already mentioned, the children learned "the Pater Noster, Ave and Credo, with ferther lernyng"; but how much the *aliis licitis et honestis* and the "ferther lernyng" embraced it is impossible to say.

(3) **UNIVERSITIES.** In the higher university education, women had, of course, no share; but exceptional instances do occur of women teachers and students in southern universities. At Salerno, women doctors were a recognized institution, and several women wrote, taught, and practised there, the most noted being Trotula (fl. c. 1059). Christine de Pisan records how at Bologna, in the fourteenth century, Novella, the beautiful daughter of the jurisconsult André, was so learned that her father used sometimes to send her to lecture to his students from his chair: "et afin que la beauté d'elle n'empeschast pas la pensée des

escoutans, elle avoit une petite courtine devant son visage." E. E. POWER.

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**WOMEN IN THE NINETEENTH CENTURY, THE EDUCATION OF.**—The nineteenth century witnessed an absolute revolution in the education and outlook of women in Europe—especially in Great Britain, and the United States of America. The women's movement, of which the educational aspect was of vital importance, was undoubtedly connected with a great social upheaval implying a growing recognition of universal human rights as opposed to class privilege; for instance, the anti-slavery agitation in America, the emancipation of serfs in Russia, and, in England, the industrial revolution. The intimate connection between the women's cause and the social movement in England is illustrated by the Chartists' scheme for female education; the championship of John Stuart Mill, whose *Subjection of Women*, 1869, was the philosophical statement of their case; the interest taken in the question of women's education by a body like the Social Science Association, before whom the women's publicist, Miss Emily Davies, read educational papers in 1862, 1864, and 1868, basing the plea for higher educational facilities on the enforced leisure for women caused by economic changes which, through development of machinery, had destroyed many feminine activities.

The women's movement in its educational aspect passed through three distinct stages: (1) During the first half of the nineteenth century pioneer work was mainly due to the isolated efforts of scholarly women of strong character and fine intellectual calibre. (2) About the middle of the century in England, somewhat earlier in America (in the persons of Emma Willard and Catherine Beecher before 1830, and Mary Lyon between 1830 and 1840), came the constructive work of great schoolmistresses, with their protest against the flimsy and uneducative instruction in vogue. (3) Gradually the somewhat isolated efforts of individual pioneers gave place to effective combination and organization, which ultimately brought the universities into touch with the women's movement.

**Pioneer Women.** Foremost among the pioneer women who proved their right to excel in an intellectual sphere was the mathematician, Mary Somerville (1780-1872), whose *Mechanism of the Heavens* appeared in 1831, and of whom John

Stuart Mill wrote: "One who has rendered such inestimable service to the cause of women by affording in her own person so high an example of their intellectual capacity." With Mrs. Somerville, Caroline Herschel received public recognition for scientific work (both being elected honorary members of the Royal Astronomical Society), also Mrs. Marcet, whose *Conversations on Chemistry*, says Mary Somerville, "first opened out to Faraday's mind that field of science in which he became so illustrious."

Beside these scholarly women in science were the writers, Jane Austen, Maria Edgeworth, and later, Elizabeth Barrett Browning, George Eliot and Mrs. Gaskell; also the philanthropists, Elizabeth Fry, Hannah More, and Florence Nightingale.

In England the main progress in girls' education had been in the primary department, notably the foundation of training colleges for schoolmistresses, further stimulated by the introduction of Queen's Scholarships, 1846. It is significant that Dorothea Beale was examined in pedagogy at Queen's College, 1848, by the Principal of Battersea Elementary Training College. In 1864, Miss Emily Davies, addressing the National Association for the Promotion of Social Science, said: "National and British Schools for girls are inspected, mistresses are trained, female pupil-teachers are apprenticed, and, to speak generally, the education of the daughters of the labouring classes is as carefully watched over as that of their sons. Why is the case altered when we advance a few steps higher in the social scale?" Secondary education was mainly in the hands of inefficient private governesses or private schoolmistresses, concentrating on superficial accomplishments and teaching by catechetical manuals. A few public and endowed girls' secondary schools existed. The Royal Schools Inquiry Commission (1864) enumerated fourteen as furnishing returns. The private schools at their worst deserved the strictures of Herbert Spencer, but certain private schoolmistresses were pioneers of reform, notably Miss Elizabeth Sewell, and Miss Pipe at "Laleham," Clapham Park, S.W., influenced by Arnold of Rugby.

**Higher Education of Girls.** Realization of a more solid and liberal basis for girls' education in England originated, indirectly, in a philanthropic effort to improve the economic condition of governesses through the Governesses' Benevolent Institution, started in Harley Street, London, 1843. A registry for teachers was established and a scheme for an examination and award of diplomas. The examination soon demonstrated the need for systematic instruction. The co-operation of King's College professors was secured—the idea of a college for women had been discussed by Kingsley, Tennyson, Mrs. Marcet and others—and Queen's College was opened in 1848, F. Denison Maurice giving the inaugural address, which in its tentativeness and apology for the term "college" throws light on contemporary prejudice against the higher education of women. Among the earlier students at Queen's College were Miss Buss, Miss Beale (later mathematical tutor), Lady Stanley of Alderley acting as "Visitor." The institution was also a school, taking pupils from 14 years of age. When Mrs. Reid established, in 1849, in Bedford Square, London, Bedford College (undenominational) a school was also attached.



The two pre-eminent English pioneer schoolmistresses were Frances Mary Buss, 1827-1895, and Dorothea Beale, 1831-1906 (*qq.v.*).

In 1850, Miss Buss opened a school for girls in Camden Street, North London, making a point of including Latin and mathematics in her curriculum. Her school grew rapidly, from 38 to 135 pupils in the first year, her great personal influence lending strong support to her progressive policy. Desiring perpetuation of the school embodying her educational ideas, she turned it (in 1870) into a public school controlled by trustees—the North London Collegiate School for girls, Camden Road (*q.v.*), became a model for English public high schools.

The second great pioneer school, Cheltenham Ladies College (*q.v.*), opened 1853, was a public school from the first, partly framed on the lines of Cheltenham College for Boys, *e.g.* in its religious teaching and social status of the pupils. The curriculum included Latin as well as modern languages. The real prosperity of the enterprise was due to Miss Beale, appointed lady principal in 1858. Miss Beale, opposed to slavish imitation of a boys' curriculum, postponed Latin in favour of German in the earlier years, nor was she anxious for girls to take the same examinations as boys, though the movement in this direction ultimately carried her with it. Miss Beale and Miss Buss did active propagandist work outside the immediate sphere of their individual schools: *e.g.* in 1865 Miss Beale addressed the Social Science Congress at Bristol, protesting against the prevailing superficiality of girls' education. She became President of the Headmistresses' Association, and, 1898, a corresponding member of the National Educational Association, U.S.A. Miss Buss, the first President of the Headmistresses' Association, worked strenuously for admission of women to universities.

The leading organizers of co-operative effort in women's education were Miss A. J. Clough and Miss Emily Davies—Miss Clough chiefly in the North of England, which played a prominent part in the women's movement, particularly Newcastle-on-Tyne, Manchester and Liverpool, Leeds and Sheffield. Miss Clough and Mrs. Josephine Butler organized the North of England Council for Promoting the Higher Education of Women, started at Leeds, 1867, which worked for a university extension lecture scheme and a university examination for women (Cambridge Higher Local).

**Women and the Universities.** Educational reformers were faced with the problem: should female education strike out a line of its own or identify itself with male education? While Miss Beale and Miss Clough appeared to favour the first alternative, Miss Buss and Miss Davies (unhesitatingly) stood for the second. Miss Davies concentrated first on the admission of girls to the university local examinations, and, later, of women to university degrees, working for these objects largely through the London Committee, which she organized, and by means of widely-signed memorials. In 1863 was secured an informal examination for girls parallel with the Cambridge Local for boys, and, by 1866, Cambridge, Edinburgh and Durham Local Examinations were officially opened to girls.

The test of examinations showed the weak points in existing girls' education, confirmed by the Reports of the Schools Inquiry Commission,

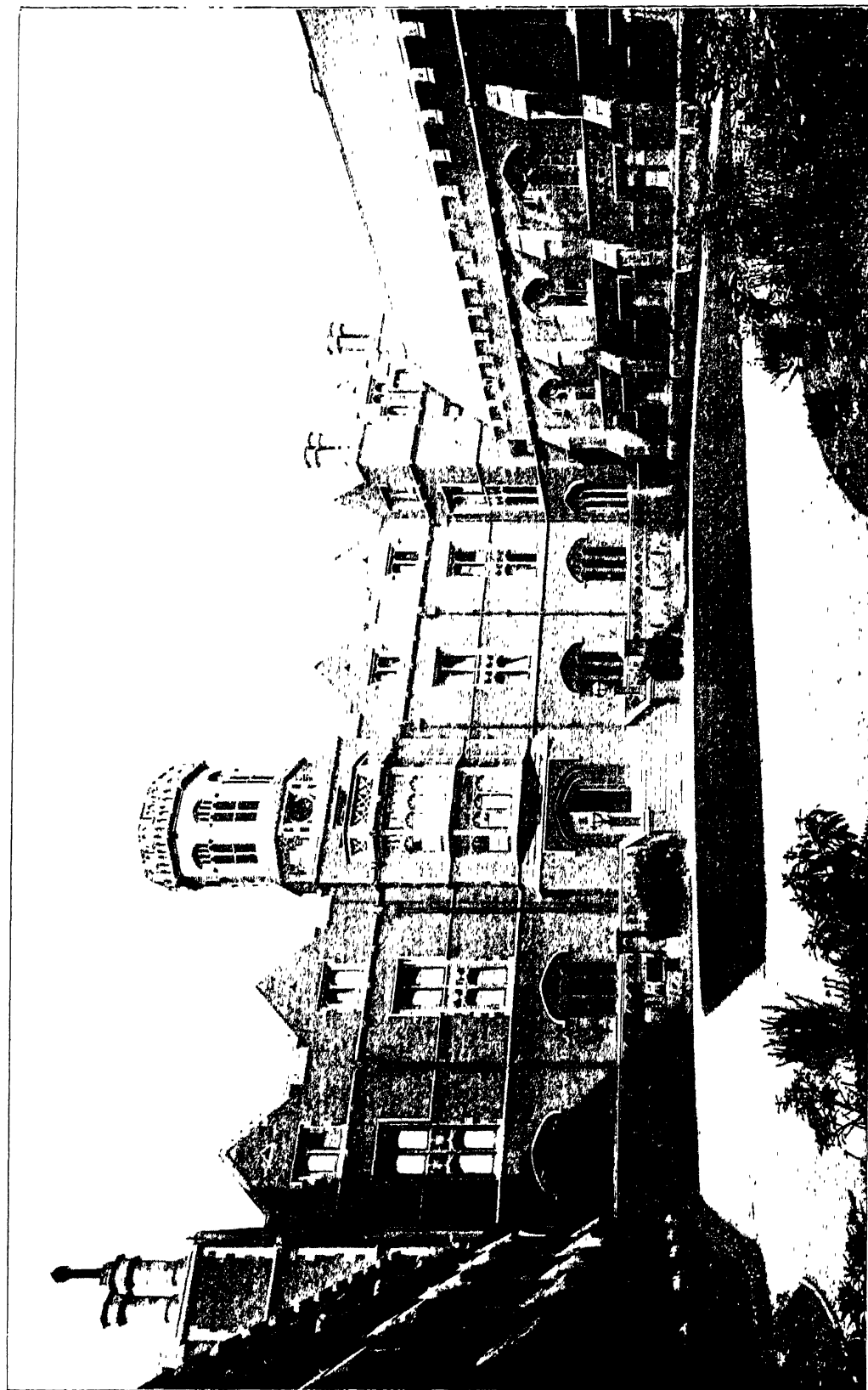
1864-7. Largely through the efforts of Miss Davies and Miss Bostock, girls' secondary schools had been brought within scope of the inquiry, and the question of female education henceforth acquired official status. Nine women educationists, including Miss Buss, Miss Beale, and Miss Emily Davies, gave evidence. The Commission reported that there was no general demand for thorough education of girls, that the majority of girls' schools were inefficient—"want of thoroughness and foundation; want of system; . . . want of organization." They acknowledged that the essential capacity for learning was "the same or nearly the same in the two sexes," they approved the opening of university local examinations to girls, recommended inspection of girls' schools, and the establishment for women of colleges of university character, and declared "that the exclusion of girls from the benefit of educational endowments would be inexpedient and unjust." The Commission failed to achieve actual reorganization and unification of English secondary instruction owing mainly to apathy of public opinion, but the Endowed Schools Act, 1869, extended to girls a share of educational endowments, as in the case of Bradford Grammar School Scheme, 1871, Bedford High School, and King Edward Grammar Schools in Birmingham.

Meanwhile the indirect effect of the Commission was stimulative. Mrs. William Grey and Miss Emily Shirreff, conceived the project of a National Union to promote girls' education, 1871, which evolved the Girls' Public Day School Company Trust, 1872-3 (*q.v.*), which founded girls' high schools in main centres of population.

With the tendency to assimilate education of girls to boys, came the question of co-education (*q.v.*), already established in America and Scotland, and also in Wales, especially after the Welsh Intermediate Education Act of 1889. In England, Lady Manners' School at Bakewell was one of the first co-educational secondary schools.

The early results of university local examinations, the Commissioners' reports, and the obvious need for adequate staffing of the new schools, made the question of admission of women to full university facilities more urgent. The United States, Switzerland, and the Scandinavian countries, and France were ahead of Great Britain in this matter; but in 1878, women were admitted to membership degrees of the University of London (memorialized on the subject since 1862, the year of Miss Garrett's petition). In 1880, Victoria University was founded for both sexes, an example followed by all the new provincial universities. In 1892, women were admitted to membership and degrees of the four Scottish universities; and at Durham (except in theology), 1895. The Royal University of Ireland, incorporated 1880, was open to both sexes. In 1870, Cambridge allowed women to take the mathematical and tripos examination, and in 1872 Oxford began to open the Honours "Schools" to women, neither university, however, consenting to confer degrees on them. Pioneer women of an older generation—Mrs. Somerville, Mrs. Gaskell, and Mary Howitt, supported the cause of the admission of women to the universities, thus linking up the whole movement of the century.

In 1869, Miss Emily Davies opened a college for women at Hitchin (moved to Cambridge, 1873, and known as Girton (*q.v.*)). Helped by Henry Sidgwick, Miss Clough started a house of residence



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for students in Cambridge attending lectures organized for women, which developed into Newnham College. In Oxford the Association for Higher Education of Women was started, 1878; and in 1879, Lady Margaret Hall and Somerville Hall (*qq.v.*) (afterwards Somerville College), were opened; St. Hugh's Hall, 1886; and St. Hilda's Hall (in connection with Cheltenham Ladies' College) in 1893. In Glasgow, Queen Margaret College was incorporated 1883; Alexandra College, Dublin, was founded 1866; Royal Holloway College was opened 1887 (*q.v.*).

Though the prime need had been for intellectual equipment of university standard, the professional training of secondary teachers soon developed. In 1878 the Maria Grey Training College opened in London; in 1885, the Cambridge Training College, followed by Training Departments such as those at Cheltenham Ladies' College and Bedford College, London. Colleges also opened in connection with the development of physical culture and the technical subject of gardening.

Perhaps nothing better illustrates the improvement in the position of women educationally than the Royal Commission of 1894, as compared with that of 1864. In 1894 the Commission, which included three women members, Mrs. Bryant, Mrs. Henry Sidgwick, and Lady Frederick Cavendish, recommended that women should be eligible for appointment on all local education authorities, and declared that it was the duty and interest of the community to demand equal provision of secondary education for both sexes.

A. WATSON.

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**WOMEN TEACHERS, THE STATUS OF.**—There has been a double line of development in the woman teacher: on the one hand, her descent may be traced from the private governess and children's nurse; on the other, from the schoolmaster. The latter development has been comparatively recent, dating roughly from the beginning of the women's movement.

The position of the private governess, as of the tutor, varied from that of an ill-paid and despised drudge to that of a revered and trusted friend, according to the disposition of the employer. In many cases, governesses were persons of little or no education, and their ambiguous position in the household was to some extent justified by the doubtful quality of the instruction they provided. It was a vicious circle. It is to be noted that the women's movement began with the demand for the higher education of women, and for the opportunity of putting their education to the test of public examination. It was at this stage that the position of the woman teacher began to be influenced by that of the schoolmaster. Men and women received the same instruction at the university;

girls' schools were founded with aims and methods resembling those of boys' public schools, and staffed entirely by women. Socially and economically the position of the woman teacher was greatly improved by these changes, though perhaps the social improvement was more marked than the economic. The greater independence of life at a day-school, and the enthusiasm which the work of women's education created at the outset, blinded members of the profession to the economic weakness of their position.

The professional associations which were formed to further the interests of education in general soon found their attention directed to this weakness in the position of the teacher: enquiries were made, salary schemes drawn up, and, by means of their own registries and by the interchange of advice and information, a steady effort was made by the associations to raise salaries to an adequate standard.

**Social and Economic Aspects.** The advent and the multiplication of the municipal and county schools introduced a new element into the situation. Their tendency has been to obscure the boundary between secondary and elementary education, and to spend generously upon buildings and equipment, while making also an effort to provide a reasonable salary for the teacher; but, generally speaking, they have favoured long hours of work and short holidays. Where the hours of work are excessive, not only must the individual teacher suffer in health and her mental outlook be impoverished, but the educational standard is inevitably lowered, since all leisure for original research or progress in knowledge is absent. Teaching becomes too much a matter of routine and method, and ceases to attract the best and most original type of brain. While low salaries are a serious drawback to the teaching profession, want of leisure and the loss of social amenities are still more serious in the eyes of most women.

School life, monastic in its origin in the majority of cases, still retains its conventual character in all but a very small minority of schools: too few schoolmasters are in a position to marry, but the number of married women teachers is so small as to be altogether negligible. The work of the school pre-supposes an unmarried staff, without leisure for serious thought or study. During recent years this has undoubtedly prevented some women from entering the profession, and has still more often made them willing to leave it. Had more professions been open to women, it is doubtful whether the supply of teachers would not have been exhausted even before the outbreak of the Great War.

**Prospects and Dangers.** It has to be remembered that the number of highly qualified and trained women is small; women's colleges are comparatively few, and the number of those who take degrees in any year is not large. More perhaps pass through training colleges, but of these only a small proportion are specially qualified in any one subject. Of university students a large number are not preparing for the teaching profession, while, of those who are so prepared, many leave the profession in the event of their marriage or to return to home life. From the purely professional point of view the present position might seem to promise well for the future. The formation of a Register of Teachers, the general introduction of pension schemes and schemes of superannuation, the recognition of the

importance of sound education and training, not only for the individual but for the nation, are all calculated to increase the dignity of the teaching profession and the security of the individual teacher; while the small supply of highly skilled teachers should enhance their market value.

But there is a grave danger attaching to the present position: while the abler women are tempted to abandon the profession for those which offer either better salaries, wider scope for their powers, or more personal freedom, the less well qualified women are willing to take their places under the old or even less favourable conditions. The process of substitution has appeared in the educational world as in other spheres, and unless it is kept within limits it will be ruinous to the education of girls and to the future of the profession of teaching. The gaps left by the war in the teaching staff of boys' schools were largely filled by the more enterprising of the women, some of whom received the larger salaries which they deserved, others from patriotic motives accepting lower salaries than the men whom they replaced; in both cases, many of them failed to return to teach in girls' schools, and were lost to the profession.

At the same time, the demand for women's work, even if only partly skilled, and the offer of intensive training at slight or no expense, made it possible for fairly remunerative work to be obtained without a prolonged or thorough education. Manual work of all kinds had an enhanced value, and schools made themselves useful in the emergency by sacrificing the academic to the practical studies. The danger was thus twofold: from the diminution of the supply of highly skilled teachers, especially in girls' schools, and from a diminution in the demand for them, partly from necessity and partly owing to the emergence of new claims upon the time and energy even of schoolgirls. It is to be feared that a generation may grow up which for lack of opportunity is untrained in those very subjects in which training is seen to be so imperatively required: in a word, the diminution in the supply of women teachers now will lead to a cessation in the next generation. It is a situation of which the possibility must be foreseen in order that it may be avoided.

The root of the matter is the fact, sometimes ignored, that, for the welfare of the individual and of the nation, the education and training of girls is as important as that of boys, although fewer girls are destined to be breadwinners. From the purely commercial point of view, the risk of losing the fruits of an expensive education is greater in the case of a woman than in that of a man, but it is a risk that must be run. Further, both to boys and to girls the opportunity of some special training should be given, as well as the broader, general education which is not the work of specialists. Side by side with the discipline of character and the training which is produced by efficient methods, there must be the enthusiasm of the scholar or man of science. The capable woman, with powers of organization and discipline, is being attracted to social and political work; the student to the university, or to those careers of practical usefulness which have suddenly opened to women. If they are not to be lost to the teaching profession, that profession must be made more attractive. For the sake of generations to come some teachers will be

unwilling to desert their profession, but the other claims are strong, and their attractions will appeal to those who are at the outset of their career.

Under present conditions the prizes of the profession fall chiefly to organizing power, and the post of head mistress or second mistress is the recognized goal of the teacher. University work is closed to teachers in schools after very few years, for the simple reason that they have not the leisure to do advanced work on their own account. In many places it would be possible for university teachers to give some lessons to the more advanced pupils in schools, while successful teachers in schools, with powers of original thought and research, might be promoted to university teaching. With the present time-table the correction of exercises occupies the leisure which should be devoted to reading or research.

More generous salaries, which would relieve the mind of the teacher from petty cares and anxieties about the future or the welfare of dependents, would also serve to uphold the dignity of the profession and attract women to it; but it is the demand for a high standard of knowledge and the opportunity for maintaining it which will, more than anything else, recall women to the teaching profession, and promote the interests of girls' education.

E. R. P.

**WOODARD SCHOOLS, THE.**—These are fourteen in number, belonging to the Corporation of SS. Mary and Nicolas. The Rev. Nathaniel Woodard, while working in 1841-2 as a curate in the east end of London, realized, in his own words, "that the greatest possible good that a nation can enjoy is unity among the several classes of society, and nothing can promote this so effectually as all classes being brought up together, learning from their childhood the same religion and the same rudiments of secular education." He therefore determined to devote his life to the cause of education, based upon the religious principles of the Church of England, which he believed to be comprehensive enough to include all who call themselves Christians. In 1847 his first school was opened in his own house at Shoreham, his family removing into lodgings. Next year he published *A Plea for the Middle Classes*, maintaining that they were neglected in the matter of national education, and founded his society, the object of which was to raise money from Church people in order to build boarding schools on a large scale, to be conducted on the lines of the old public schools, but with greater economy. In the earlier days, the decided religious attitude of the society aroused bitterly hostile criticism and fanatical outbursts, but also strong support from men of very diverse opinions. Stately buildings arose at Lancing, Hurstpierpoint, and Ardingly, in Sussex. In the early seventies an extension was made in the Midlands, where Denstone College was opened in 1873, and now there are also schools for boys at Ellesmere and Worksop, and for girls at Abbots Bromley. There are also boys' schools at Bloxham and Taunton, and girls' schools at Bognor, Scarborough, Harrogate, and Bangor. Mr. Woodard's later history well illustrates the way his ideas appealed to Churchmen of different ways of thinking. He was made Canon of Manchester on the nomination of Mr. Gladstone, and D.C.L. of Oxford by Lord Salisbury, on the latter's installation as Chancellor

of the University. The Woodard Corporation is now perhaps the largest governing body connected with secondary education in the Empire; nearly 2,500 pupils are at present in its schools, 1,800 boys and 700 girls. The largest in point of numbers is Denstone College, which had 349 boarders in the Michaelmas term, 1916. F. A. H.

**WOODBROOKE SETTLEMENT.**—(See FRIENDS SCHOOLS.)

**WOODWORK, THE TEACHING OF.**—After nearly thirty-five years of experimental work in teaching handwork in schools of various types, there is still considerable disagreement as to the method of presentation which will best secure efficiency and skill in the handling of tools. Especially do these diversities of opinion concern woodwork, because of the many divisions of the subject which are now dealt with in elementary and secondary schools.

The methods advocated by the trained teacher who has acquired some knowledge of the use of tools run counter in many respects to those advanced by the highly skilled craftsman-teacher. Both are specialists, and present their knowledge in different ways. To the former, the sciences of pedagogy and psychology dictate the method; with the other, craftsmanship and vocation are the ends aimed at.

The introduction of light woodwork into the schoolroom has caused considerable alteration in the general character of the work in the fully-equipped woodwork centres; and this, in turn, has had its effect on the trade and technical classes. It has emphasized the need for closer co-operation between the two types of teachers, and for readjustment of the three distinct courses of work, so as to ensure complete unity of purpose, and the realization of the three educational ideals: the simple work of the classroom, to be creative; the work of the fully-equipped centre, constructional; and that of the technical class, vocational craft-training in the highest signification of the term.

**Methods.** To many teachers some definite guidance is necessary, in order that their teaching may proceed along correct lines, assured of continuity and certain progress, with a full mastery of the technicalities involved. Otherwise, their isolation, especially in country schools or detached "centres," will produce mere mechanical effort, devoid of that uplifting power of purpose which begets confidence in the pupils and strengthens them to approach new problems by new avenues of thought and experiment.

The directions given should be suggestive rather than dogmatic; the slavish following of a tried and successful scheme of work holds no guarantee of adequacy or efficiency. The personality of the framer—an admitted factor of success—cannot be transmitted in printed instructions; the adapter must give his own interpretation and rendering, and be ever on his guard against pitfalls and failure.

Broadly speaking, we may say that the best way to secure efficiency in any practical subject—especially one in which edged tools are used—is to interweave the heuristic method with the demonstration class-instruction method, the former being the "warp" and the latter the "weft" of the combination. Individual expression—the working-out of preconceived ideas—will be materially aided by systematic instruction (based on a type-model

or project), this demonstration being given to the class collectively or to the pupil singly as occasion seems to demand. During the making of the selected project, the teacher should show clearly the underlying principles of design and construction, and point out how adaptations and variations can be made without impairing the general features of the type. The acquisition of technique is essential in all circumstances where tool-work is concerned; detailed instruction in tool-using in accordance with established usage, as opposed to self-acquired notions of "how to do it," is of paramount importance.

"Until a boy has acquired a working knowledge of the ordinary tools and some skill in their use, he cannot be thrown on his own resources,"—[Board of Education Circular 891; *Manual Instruction in Secondary Schools* (1915).]

In the early stages of woodwork, the standard of technique will be low; but the tool-work executed on the type-model by the teacher during the successive stages of the demonstration lesson should be representative of the ideal to be reached. The technique of the demonstrator should be beyond criticism. The orderly sequence of the steps should be considered of vital importance; habits of careful planning and careful execution must be inculcated during these fundamental lessons, so as to counteract the tendency to slovenly work due to the desire of the young enthusiast "to see the finish" of his unaided effort. Tactful handling of this impetuosity is most necessary at this initial and impressionable stage. It is best curbed by the careful planning of varied repetitional exercises, avoiding the actual reproduction of the original project. If true craftsmanship is the aim, the preliminary stages must not be based on the officially authorized *dicta*, "do it in your own way," and "find it out for yourself"—maxims which experience has proved to be fatal to high efficiency.

The type-model need not always be a class problem. Freedom of classification will allow the teacher to organize the class so as to encourage individual progress. Those showing greater ability should attempt more difficult projects, based on the class type which, at the same time, is being more slowly worked by the remainder of the class. If these advanced projects involve the use of new tools or processes, the teacher must decide for himself between individual tuition and a class demonstration. In some cases, especially when the minority of the class forms the slower group, the ocular demonstration method will be most advantageous, for experience proves that repetition is the most certain way of impressing a slowly receptive brain which in all other respects is normal. In any case, the method should be largely educative, advantage being taken of the desire of the brightest pupils to supply the bases of these explanatory talks.

**Light Woodwork and Its Possibilities.** In the light woodwork section, the quality of the finished model will be rather inferior to that of the same type of work done with a full equipment of keen-edged and well-kept tools; but attention to the essentials of construction, with a desire to overcome difficulties as they arise, will allow a solid foundation of the guiding principles of woodwork to be laid, upon which the second stage can be firmly established. Careful observation of the methods adopted by teachers of both types shows conclusively that light

woodwork possesses certain definite advantages over the ordinary woodwork of the centre system. The lack of tools tends to bring out the inventive powers of both teacher and pupil, and difficult problems are solved by methods unorthodox, and often crude both in conception and in execution, but containing some little ingenuity which, when fully developed, will open new avenues whereby similar but more difficult projects may be approached. In this sense the section is rightly named "creative." There is a limit to the number of methods of construction available, due partly to the small size of the material, and partly to the scanty supply of tools and other appliances; but there is no limit to the possibilities offered to the observant, ingenious teacher of developing self-reliance in the boys under his direction.

Of late, the "centre work" (officially named "heavier woodwork-handicraft") has undergone revision, and the advanced projects and problems of light woodwork have been included in the new schemes by many of the best craftsmen-teachers. The freedom which characterizes the simpler work, after the type-project embodying some definite principle has been satisfactorily completed, is very attractive, and undoubtedly was the main inducement for the revision. Methods of presentation have also been revised in many ways; so much so, that mediocre work has given place to craftsmanship of no mean order. This development is most distinctly noticeable in urban schools and institutes, where evening work in craftsmanship of various kinds forms a strong feature in the programme, and is conducted by the same teacher. In such co-ordination we have the best possible argument for the establishment of a rational scheme of woodwork, planned so as to secure educational development and adaptability, and providing for those who show special ability a pre-vocational training which will be a sure foundation upon which true craftsmanship can be built

J. H. J.

**WOOLWICH, ROYAL MILITARY ACADEMY AT.**—(See MILITARY EDUCATION.)

**"WORCESTER," THE TRAINING SHIP.**—(See MERCANTILE MARINE, TRAINING FOR THE.)

**WORD ANALYSIS.**—Large numbers of words are derivative; that is, formed from a simple or primitive word by means, especially, of affixes.

In the word "non-ad-hes-ive," the root is the Latin *haesum*, the supine of *haerere*, to adhere; with suffix *ive*, denoting inclination; and with two prefixes, *ad* (to) and *non* (not).

Derivatives often undergo changes after their formation. Letters are dropped from beginning, middle, or end, as in "apron," (originally *napron*); "bedlam" (Bethlehem); "petty" (*petit*); or letters are added, as in "newt" (an ewt); "nimble" (for *nimel*); or "thumb," Middle English *thombe* from Old English *thume*.

Sometimes letters have been transposed, as in "third," from *thrid*; or in "trouble," from Latin *turbulare*.

E. CADMORE.

**WORD-BUILDING.**—If a language is living, it must, of necessity, constantly add to its vocabulary; and the two main methods by which new words are added are by composition, and by derivation.

(i) By composition, that is, by putting together

two or more independent words, as "tea-cup," "machine-gun."

Compounds are often difficult to recognize as such. Thus "gossip" was originally *god-sib*, related in God (as sponsors in baptism); and "hussy," *huswif*, house-wife (woman).

Some which look like compounds are, in reality, simple. "Cray-fish" is from French *écrevisse*, and "curtle-axe" from *coutelas*. The syllables "fish" and "axe" are due to mistaken etymology.

(ii) By derivation, that is, (a) by modification of a root-word, as in "song" from "sing," or "ditch" from "dig"; or (b) by addition to a root-word, of prefixes, as *re* in "re-gain"; or of suffixes, as *ward* in "heaven-ward."

Prefixes usually modify the meaning of the word to which they are attached, as "*fore*-tell"; while suffixes often alter its grammatical function, as in "*lion-ess*."

When a word is made up of elements taken from different languages, it is termed a hybrid. Such is the word "mac-adam-is-ed," which comes from Gaelic, Hebrew, French, and English.

Words are often formed in real or fancied imitation of natural sounds, as "cuckoo," "slap."

E. CADMORE

**WORDS, THE STUDY OF.**—Any research into the history of words demands a knowledge of phonetics, the science of sounds, and of semantics, the science of significations, in order that the laws by which, in process of time, certain regular changes in pronunciation take place and the meanings of words become extended or restricted, may be studied. Further, an acquaintance with literature is needed, in order that the various stages may be traced through which a word has passed before reaching its present form and meaning; and, finally, a knowledge of a country's history, by which both language and literature are affected.

No language is entirely pure and unmixed; all have received words from other languages. Especially is this the case with English, though it is, in the main, a low-German tongue, developed out of that spoken in the fifth century by the invaders from the eastern shores of the North Sea. To this primitive language, now termed Anglo-Saxon or Old English, we owe (1) most pronouns, prepositions, conjunctions, auxiliary and strong verbs, and numerals, besides nearly all our grammatical inflexions; (2) most monosyllables and words compounded of independent monosyllables; (3) all the most familiar and necessary words of daily life, associated with the duties, relationships, and emotions of human existence. Of the proportions of English and foreign words in our vocabulary, Archbishop Trench says: "Suppose the English language to be divided into a hundred parts; of these, to make a rough distribution, 60 would be Saxon, 30 would be Latin (including, of course, the Latin which has come to us through the French), 5 would be Greek; we should thus have assigned 95 parts, leaving the other 5—perhaps too large a residue—to be divided among all the other languages from which we have adopted isolated words."

**Contributions to the Language from Various Sources.** The present language has few traces of the original Celtic, nor did the Roman conquerors enrich it with many words. Far different is it, however, with the Norman-French, a Latin-derived language, introduced at the Conquest. This



remained for two centuries exclusively the speech of the ruling classes; but, the French wars of the fourteenth century rendering it unpopular, English gained the ascendancy, though large numbers of new words from Norman-French became incorporated with it.

Finally, the revival of learning, and the discoveries and inventions of the fifteenth century, calling for new terms to express new facts and ideas, a vast number of fresh words were coined from Latin and Greek. This stage marks the beginning of the modern English period of the language, lasting till the present day.

Owing to its history, especially to the fact that English was used for a considerable time side by side with Norman-French, modern English is peculiarly rich in synonyms. Such are the native *begin*, *buy*, and *work*, with their Norman-French twins, *commence*, *purchase*, and *labour*.

At the Renaissance, too, numbers of new words were formed directly from Latin, regardless of the fact that derivatives from the same roots, coming through Norman-French, were already in existence. These are known as doublets. Such pairs as *poor* (from Norman-French) and *pauper* (direct from Latin), *fealty* and *fidelity*, *sure* and *secure*, owe their origin to this. In some cases, the meanings have also undergone considerable change, as in *poison* and *potion*.

English has a large number of homonyms. Thus we have "lie," to tell a falsehood, old English *leogan*; and "lie," to recline, old English *licgan*; "boot," a foot-covering, late Latin *botta*, and "boot," profit, advantage, old English *bōt*, profit.

The study of literature shows that in the course of centuries words may undergo striking changes of meaning. The word "nice," Latin *nescius*, "ignorant," has successively signified simple, lazy, fastidious, and delicious; "silly," old English *sælig*, timely, has descended through happy, lucky, blessed, and innocent, to foolish. E. CADMORE.

**WORDSWORTH AS AN EDUCATIONIST.**—If Wordsworth had had his way, elementary education, as we know it, would have been impossible. He objected to free education as a breaker of the bond of affection between the child and the parent. One of the precious possessions of child life, he thought, was the conviction that the parent was willing to make large sacrifices for the child's education. He saw no good in training the intellect unless the religious susceptibilities of the child were also called out. What was the good of quickening the intelligence unless the spiritual and imaginative side of the child was fostered. "Can it, in a general view," he said, "be good that an infant should learn much which its parents do not know? Will not the child arrogate a superiority unfavourable to love and obedience?" The view that knowledge and intellectual adroitness was all that was needed for the welfare of the State was to him anathema, and he classed elementary schools with the London University Mechanics' Institutes as likely to make discontented spirits, and insubordinate and presumptuous workmen.

Wordsworth never realized that the alternative to compulsory education was child labour in the mills. He could not trust the people with the power that cultivated intelligence brings to them. We have to remember, however, that he had passed through the times of the French Revolution, and had seen all his hopes of a free people with power in

their hands, and using that power well, fade into nothingness. He lived, too, at a time when, owing to the industrial revolution and the rise of a pitiless capitalism, the doctrines to which he had given his life as a teacher—the doctrines of the sacredness of childhood, the vitalizing power of Nature, the authority of reason, the value of joy as an index of moral health—were assailed on all sides. What he felt about that sacred light of childhood we learn from his great *Ode on the Intimations of Immortality*. The power of nature from the earliest day to help the growing mind we know from his apostrophe to the river Derwent in *The Prelude*, Bk. I, p. 14, and from the passage beginning, "Wisdom and Spirit of the universe," and again from the passage in Book II which begins, "From Nature and her overflowing soul."

His answer to Mathetes in the seventeenth number of *The Friend* shows how he trusted joy and reason to be the educators of mankind. "We have been treating," says he, "of Nature as a teacher of truth through joy and through gladness, and as a creatress of the faculties by a process of smoothness and delight. In manhood, however, we apply for the succour which we need to a faculty which works after a different course; that faculty is reason."

**Wordsworth and Science.** It is sometimes said that Wordsworth hated science, but, although he wrote strongly against the Windermere railway, he had enough power of vision to

"rejoice

Measuring the face of those gigantic powers

That by his thinking mind have been compelled

To serve the will of feeble-bodied men."

He fully recognized the full value of science, but he saw the practical danger in the possibility of the soul and the power of imagination dwindling by the absorption of the scientific mind in detail.

In his essay on the *Principles of Poetry*, he points out the practical dangers that lie in too complete absorption in scientific pursuits, but he protested that the man of science and the poet should work hand in hand. "The man of science," says he, "seeks truth as a remote and unknown benefactor; he cherishes and loves it in his solitude; the poet, singing a song in which all human passions join with him, rejoices in the presence of truth as our visible friend and hourly companion. Poetry is the breath and finer spirit of all knowledge; it is the impassioned expression which is in the countenance of all science. . . . If the time should ever come when what is now called science shall be ready to put on, as it were, a form of flesh and blood, the poet will lend his divine spirit to aid the transfiguration, and will welcome the being thus produced as a dear and genuine inmate of the household of man." H. D. R.

**WORDSWORTH'S POEMS IN TEACHING HISTORY, USE OF.**—(See BALLADS AND LYRICS IN CONNECTION WITH THE TEACHING OF HISTORY, COLLECTIONS OF.)

**WORKERS' EDUCATIONAL ASSOCIATION, THE.**—This association, familiarly known as the W.E.A., was founded in 1903. It has given rise to educational work to an extent which can best be appreciated by an examination of statistics; the movement is also powerful in Australia and New Zealand, and has begun operations in Canada and South Africa.

GREAT BRITAIN AND IRELAND.

	1907- 8.	1909- 10.	1911- 12.	1912- 13.	1913- 14.	1914- 15.
Branches	13	71	110	158	179	173
Affiliated Societies	283	1,389	1,879	2,164	2,555	2,409
Individual Members	2,612	5,801	7,011	8,723	11,430	11,083

	1916- 17.	1917- 18.	1918- 19.	1919- 20.	1920- 21.
Branches	191	209	219	277	317
Affiliated Societies	2,336	2,709	2,526	2,760	2,896
Individual Members	10,750	14,697	17,136	20,703	23,880

OVERSEAS.

	1913- 14.	1914- 15.	1918- 19.
Associations	.	.	9
Branches	.	10	17
Groups	.	9	11
Affiliated Societies	.	86	148

The 2,760 British organizations comprise the largest of the national bodies of working people, and a number of university bodies. There is no type of organization unrepresented. At its annual meeting, the Association can claim to represent the unified mind of education and labour.

**Organization.** England is divided into districts, which are autonomous in government but federated for national purposes in a strong central council, which alone can speak in the name of the Association. There are 277 branches, or federations of local societies, which develop after their own manner the work in their areas. They also are autonomous, but their constitution must preserve the essential unsectarian and non-party basis of the Association, as also the democratic nature of its government.

Local Education Authorities and powerful educational institutions have, from the outset, welcomed the Association, whilst the Board of Education has been an ever-ready helper within the limits of its power. Universities, municipal and educational authorities have readily afforded the use of the facilities they possess, besides making numerous small grants of money.

Before examining the educational achievements of the Association, it may be well to trace the formation of a local branch. It is usual for some organization, such as the Trades Council or the Education Authority, to convene a conference, to which delegates are invited. A provisional committee is established which drafts a constitution. In all constitutions there is a federating clause, and few branches start without a fair proportion of the working-class societies and educational bodies of the town taking part and appointing representatives on the governing body. There is no danger of competition with existing bodies, for the main purpose is to utilize them and only to initiate such work as no one else can, or will, do. These branches cover the whole field of education, both in a recreative and a scholastic sense, but in England there has been no desire to use them for technical education, with the exception of some village branches. The first branch, founded in 1904 at Reading, is still at work and is increasing in strength. As all branch officers are voluntary officials, the work rises or falls in accordance with their ability and devotion. There are, of course, cases of branches ceasing, but they are few. No vicissitudes seem to

kill them, and it is easy to see that they respond to a fundamental need of human nature.

This is emphasized by the case of Australia, which has adopted the W.E.A. all over the Commonwealth. In a new country, it is true, fewer deep-rooted obstacles exist, and financial aid is more easily secured—in large measure, too, from the Government.

**Nature of Educational Work.** In the eyes of educationists, the University Tutorial Class (*q.v.*) movement is the unique creation of the Association. But, to those who know it best, the simple pioneer work, expressing itself in thousands of study circles, and in large numbers of one-year classes organized in accordance with the regulations of the Board of Education, seems to be no less important.

Numberless men and women have been led to enjoy sound literature and to care for beautiful pictures. There are few men and women who will not rejoice in the acquired power to enjoy a good book. Working people will give up their leisure to attend lectures, as the thronged aisles of Westminster Abbey have proved on many a hot June afternoon.

The Association asks real earnestness of intention from those whom it admits to its classes or lecture courses. Only those were admitted to the Westminster lectures who promised to attend on each occasion unless unavoidably prevented. It asks no entrance fee, but simply a willing toll of brains and character. The poorest of the people are not only welcomed but sought out.

There is no reliable estimate of the number of those who have come under its educational influence, but in no recent year have there been fewer than 10,000 in serious classes. The lectures it arranges are legion, and are given in all kinds of places. During the winter of 1914-15, 1,699 lectures were given in connection with the war alone.

In her address before the British Association, Mrs. Henry Sidgwick said: "Probably our best hope for progress in the right direction lies in movements like the Workers' Educational Association, where we have voluntary effort put forward to satisfy spontaneous desire to learn. As this movement extends, we may hope more and more to get a generation of parents who, having themselves experienced intellectual curiosity and the joy of satisfying it, having themselves felt the gain of a wider outlook on men and things, may by their example inspire their children with a similar disinterested desire for learning and culture."

It is improbable that the W.E.A. will completely achieve its purpose of focusing educational activity, but it has stimulated many of its affiliated bodies to proceed more energetically on their own lines. Observers of the adult school movement (*q.v.*), the co-operative movement (*q.v.*), and the club movement can trace a distinct revival in educational interest since the establishment of the Association, and those who know these movements best can trace the direct connection. Perhaps, however, it is too early to attempt to trace its influence, but influence there has undoubtedly been.

This great popular university, for so the W.E.A. has often been called, has had placed upon it a great responsibility—nothing less than the creation of an educated democracy. It can only bear the burden because it has drawn to its aid the willing service of scholars and administrators and the educational institutions to which they belong; and it is certain that, so long as the movement expresses

the mind and spirit of labour, this aid will not only be continued but will increase.

The ideal of the W.E.A. is simply that no one shall be denied the education which is necessary to the complete development of body, mind, and spirit.

A. MANSBRIDGE.

**WORKING GIRLS' CLUBS.**—Evening clubs for working girls were started about the year 1880 in different parts of England. Foremost among the pioneers were the Hon. Maude Stanley, foundress of the Soho Girls' Club and of the London Girls' Club Union; Miss Seton Karr, of the Welcome Club; and Miss Brown, of Manchester. It was felt that something more than a weekly Bible or sewing class ought to be provided for girls whose leisure hours were often so full of temptation, and whose homes were too small or too poor to allow of opportunities for healthy recreation or self-improvement. Premises were taken in the districts where the girls lived or worked, the rent being provided by the ladies or their friends, and the girls invited to join. From small beginnings the movement has spread throughout the United Kingdom to several European countries, to America and Australia, until now clubs may be numbered by the hundred, from the financially poor one-roomed club of perhaps twenty girls, to the flourishing girls' institute with a dozen class-rooms, a gymnasium, a spacious dining-room, and a hall capable of holding its thousand members.

Whatever the size of the premises, to attract the girls they must be warm and brightly-lighted, and, if the best work is to be done, well ventilated. If possible, they should be open every night with the same person in charge, and a recurrent weekly programme followed. The time during which a club is open depends largely upon local circumstances, and ranges from 7 to 10 p.m. It is a mistake to close much before home regulations demand that a girl should be in, as the interval will be spent in the streets. In clubs where juniors are admitted, one night weekly from 6 to 8.30 is set apart for them. The recognized age of admission is generally 13 or 14 years, and membership continues till marriage, after which endeavours are made to keep in touch with the girls by occasional invitations or by the formation of a married women's branch. Class feeling being very strong amongst working girls, it is found extremely difficult, often impossible, to get them to mix. Hence the majority of the members of any particular club generally belong to one class. In some clubs only adherents of a particular faith are admitted. As regards discipline, rules should be few and simple, but strictly enforced, and non-compliance followed by refusal of membership.

**Educational Activities.** While the primary aims of most clubs are preventive and recreative (*viz.*, to save the girls from the dangers of the streets—almost their only free playground—and to give them healthy recreation and bright surroundings when their day's work is done), experience has proved that they will not continue to attend unless something more is provided. Unlike boys, they lack initiative in starting games or other occupations, and they soon tire of continual recreation. They are also of necessity utilitarian, and, given a teacher who can attract them, they will attend classes and show considerable interest in many directions. Ambulance, cookery, laundrywork, dressmaking, needlework, plain and fancy, millinery,

knitting, literature, recitation, reading, writing, singing, sight-reading, drill, Morris-dancing, skipping, wood-carving, painting, Nature study, are some of the most popular subjects. Classes for newspaper study may in competent hands be made very instructive. Bulb-growing is of great interest.

The standard of work done depends upon the teacher's attainments, ideals, and ability to interest girls who, having passed the sixth or seventh standard, often consider their education complete. They do not attend a night school, and they cannot be compelled to learn anything. Having been attracted by the cheerful atmosphere of the club and the friendship of the workers, quite rough girls are often induced to become regular, punctual attenders at classes, and in some cases to sing most difficult music or execute excellent handwork.

In London and many provincial centres, inter-club competitions have done much to raise the educational standard. By bringing different clubs together, they foster feelings of unity and interest among workers and girls. A greater value still lies in their inculcation of *esprit de corps* by teaching the ideal of working for the honour of the club and not for an individual reward. This spirit, which girls have fewer opportunities of imbibing than their brothers, is further helped by the formation of a club hockey team, captained by some educated girl. Matches are often played against ladies' teams or schools with mutual advantage. The same may be said of net-ball. The benefits of outdoor physical exercise for adolescent girls who spend their days in the close confinement of factory or workshop cannot be over-estimated, and the healthy outlet to their animal spirits is one of the most powerful helps towards their moral rectitude. To these ends swimming, drill, and skipping, taught by trained teachers, are valuable. It is not advisable to have a male instructor. Opinions differ as to the wisdom of allowing dancing in clubs. In a large number it is permitted at stated times. It should be never allowed to interfere with other occupations.

Classes in educational subjects entail certain necessary expenses, such as the provision of suitable premises, equipment and qualified teachers. Financial help can be obtained by grants from the Board of Education. Applications for forms and information should be made to The Secretary, Board of Education, Whitehall, S.W.1. Clubs are generally supported by voluntary subscriptions, and by the weekly payments—usually a penny—of the members.

**Social Activities.** The majority of the workers are voluntary and untrained, but there is no doubt that some knowledge of social science, of industrial law, and of the work of the Charity Organization Society and of the art of teaching is of very great value. Training courses with practical work are now frequently held in various places, and settlements in large towns offer useful instruction to their residents. (See SOCIAL WORK, TRAINING FOR.)

The success of a club depends largely upon the *personnel* of the workers. They should be educated women, sympathetic, firm, able to enter into the lives and difficulties and enjoyments of the girls.

Clubs may be quite independent, or unsectarian, or connected with a church. In some there are no religious observances, in others character-training based upon religion is the keynote, and prayers and Bible classes are regularly conducted. A committec

of the elder girls is often of great help in the internal management.

Some clubs provide cheap and nourishing dinners for girls working in the neighbourhood.

Special holiday homes exist at seaside and other places to which girls may go on payment of a weekly charge.

Unions of clubs have been found a means of progress and strength. The principal are the Federation of Working Girls' Clubs, 73 Bolsover Street, W.1; the National Organization of Girls' Clubs, 16 Gordon Square, W.C.1; and the Girls' Club Unions of London, Birmingham, Manchester, Liverpool, and other centres. The two first supply valuable information on subjects connected with work in clubs. K. H.

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**WORKING MEN'S COLLEGE, THE.**—The Working Men's College was founded in 1854. It arose out of the revolutionary movement of 1848. After the failure of the political Chartist agitation, some young men, who looked on the Rev. Frederick Denison Maurice (*q.v.*) as their leader, united under the style of "Christian Socialists" in an attempt at social reform. Their first practical enterprise, the promotion of co-operative productive associations, was short-lived in its results, but it brought home to the promoters the great need of education for the working classes. Being university men, they wished to give working men something like the benefits of college education. The title "college" is explained in a circular drawn up by Maurice: "The name *college* is a valuable one. It implies a society for fellow-work, a society of which teachers and learners are equally members, a society in which men are not held together by the bond of buying and selling, a society in which they meet together not as belonging to a class or caste, but as having a common life which God has given them, and which He will cultivate in them." The college was opened on 31st October, 1854, at 31 Red Lion Square. Among the founders other than Maurice were Tom Hughes, Ludlow, Furnivall, Llewelyn Davies, Westlake, Lowes Dickinson, and Litchfield, most of whom became well known. At the outset the classes numbered fourteen, the students 120. The brunt of the practical work for some years fell on Ludlow, Furnivall, and Litchfield, while the guiding influence was that of Maurice. It was a religious influence, associated with broad tolerance for men of any or no belief, who all joined in reverence for him. The college has lost its distinctively religious tone, but in other respects the lines on which it was founded have lasted to the present day. Isolated lectures were discouraged, systematic class-teaching was insisted upon. Home work was expected; and to assist in its preparation supplementary practice classes, generally taken by old students, were instituted. The remaining classes were taken by voluntary teachers, almost all university men. The art classes had a remarkable list of teachers, including Ruskin, Rossetti, Burne Jones, Madox Brown, Cave Thomas, Stacy Marks, and Lowes Dickinson. Examinations

were instituted, certificates granted, and the title of Fellow was conferred upon certificated students who had taken part in teaching, the two first Fellows being Roebuck and Tansley. The council, originally composed of founders and university teachers, soon found room for such students.

The College had a vigorous social life, in which Hughes was conspicuous; there was a weekly tea with songs after the classes, and on Sundays country walks with geological or botanical objects. A healthy tradition was built up of hard work in class, good fellowship in and out of it strengthening into friendship, devotion to the College, and freedom from class-feeling. Within a few years working men's colleges, modelled on the London college, were established in Cambridge, Halifax, Sheffield, Wolverhampton, Manchester, Salford, Ancoats, Lancaster, Ely, and Ayr. These opened with fair promise but proved short-lived. The Vaughan Working Men's College at Leicester, founded in 1862, is still flourishing.

**The Second Half of the Nineteenth Century.** In 1857 the college was enabled, by a gift of £500 from Maurice, to purchase for £1,400 the freehold of 45 (afterwards 46) Great Ormond Street, where it remained till 1905. The building has been demolished, but a plate marks its site. When the Volunteer movement came into existence in 1859, the College corps was one of the earliest to be started among the working classes; it formed part of the 19th Middlesex, with Hughes as captain. By about 1860 much of the original enthusiasm which had led to the foundation of the college had spent itself. Many of the early teachers had left. The funds were at a low ebb, and there was a struggle for existence. The difficulties came to a head after the death of Maurice in 1872, but Hughes, the new principal, ably seconded by Litchfield, who became vice-principal, carried out the necessary reforms.

The constitution was remodelled. The property was vested in a corporation, charged to maintain the lines of the College as originally laid down, and to insure that fees and hours of teaching should be within the reach of artisans, but leaving the management of the College in the hands of a council. The constitution of the council has been modified more than once. It now consists, in addition to the principal, vice-principal, and bursar, of forty-five members; eighteen elected by and from members of the college, eighteen co-opted, and nine nominated by the L.C.C. and various outside working men's associations. The executive committee, nominated by the council, is entrusted with the administration.

Litchfield's work was nobly carried on by George Tansley, one of the early students, until his death in 1902. In 1885 he remodelled the classes and made a new systematic plan of study, which has lately been re-cast. The classes are now grouped under nine subject headings: History, economics, etc.; English, classics, modern languages, law, mathematics, science; art, music, elocution; and special classes. The total number of classes in October, 1920, was 84, taught by some 70 teachers, the greater proportion of whom were voluntary teachers, the professional teachers being mostly in modern languages, science, and art. The voluntary teachers include University men and old students of the colleges, the old student teachers having always been a notable feature of the College. Among former teachers may be mentioned Alfred

Lyttelton, Lord Haldane, Arthur Cohen, Godfrey and Vernon Lushington, Professors Hales, Brewer, and Sylvester, Anthony Hope Hawkins, G. M. Trevelyan, and Frederick Harrison. Each group has a director to supervise its teaching; the directors form the "studies committee." Examinations are conducted chiefly by outside examiners, and students sit for outside examinations. College certificates are granted for papers obtaining 60 per cent. of maximum marks, and are marked excellent for 75 per cent. Popular lectures are given on Saturdays, and short courses of a more advanced character on Thursdays—both open to the public.

**The Twentieth Century.** In 1887 the trustees of the City Parochial Charities made an annual grant jointly to the Working Men's College and to the College for Men and Women in Queen Square. An arrangement was made between the two colleges, by which certain classes were thrown open to members of both—women as well as men. This lasted till 1901, when the College for Men and Women ceased to exist. Since then only classes in the musical section have been open to women. The grant of the City Parochial Charities is now £366 13s. 4d. The premises in Great Ormond Street had been inadequate for some years when the Children's Hospital offered to purchase them. This offer and an opportune legacy of over £5,000 from W. D. Mimpriess, an old student, made it possible to move in the autumn of 1905 to the present house in Crowndale Road, St. Pancras, the foundation-stone of which had been laid in July, 1904, by the Prince of Wales, now King George V. The new building, which, with the site, cost nearly £30,000, contains a handsome library, museum, and gymnasium, besides numerous class and common rooms. It has also well-equipped physical, chemical, and biological laboratories in which original research has been carried on. There has been steady progress in the number of students and, though the war necessarily reduced them to a minimum for the time being, in October, 1920, they had risen again to well over 1,300. Fees are 2s. 6d. for one class, or 3s. 6d. for two, each term—with some modifications. There are three terms: September to December, January to March, April to June. The College remains open during the vacations. The classes are held in the evening. Tutorial classes in connection with the Joint Committee of London University for the Promotion of the Higher Education of Working People have three-year courses. The education given at the college is liberal, not technical. Besides a grant from the Board of Education, the College now receives a yearly grant of well over £1,000 from the L.C.C., which inspects the classes and nominates three members on the council, to which it otherwise leaves a free hand.

The College was represented by numbers of its sons on all fronts during the war, and there was a heavy death-roll among teachers and students.

A feature of the college has been the social life centred in the common room, which is managed by a committee elected by the students. The various clubs are likewise managed by the students. Two should be mentioned especially: the Marks Fellowship, which carries on work performed by an old student, R. H. Marks, of looking after the welfare of the students; and the Old Students' Club, which gives the annual supper at which past

and present members meet. The principals have been, since Maurice Hughes, Sir John Lubbock (Lord Avebury), Prof. Dicey, K.C., and, at present, Sir Charles P. Lucas, K.C.B. The vice-principal is Mr. A. S. Lupton; the bursar, Sir Arthur Lowes Dickinson; and the superintendent Lieut.-Col. A. A. Aldworth, M.A., M.C.

C. P. L.  
L. JACOB.

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**WORKS SCHOOLS.**—The change in industrial conditions in the early part of the nineteenth century, due to employment of steam power, brought many workers into industries requiring mechanical skill for which a long apprenticeship was necessary.

The extended use of power machinery and labour-saving devices, whilst lessening the number of workers employed in some occupations, has enormously increased the number engaged in the manufacturing industries. Specialization in processes has led to the employment of large numbers of boys and men who are engaged in operations which require a limited range of skill. It is in every way desirable that boys who are engaged in work which is unskilled, and probably monotonous, shall be given some interest in life and opportunities for joining the ranks of the skilled men. When boys enter a works, if they are placed under an instructor who is capable of interesting them in the application of scientific principles to the work of the factory, rapid mental development often follows. When the instruction is combined with the acquisition of skill in handicraft, the boys find a new interest in life. During the period of training, boys who have potentialities for higher work will be discovered and should be selected for further training.

The problem of training young men to become leaders of industry is closely connected with that of training the artisan workers. The secondary schools, technical colleges, and universities provide students who have the requisite scientific knowledge. Whilst it is not essential that these men should become highly skilled in handicraft, it is very necessary to give special training for the higher positions in works.

The British Admiralty have, since 1864, trained men at the Royal School of Naval Architecture, at the Royal Naval College, and at the dockyard schools. Practical training has been carried on side by side with the training in theory, with excellent results to the Navy. Many of these trained engineers and naval constructors leave Government employ to take responsible positions in private firms, so that the whole industry of the country has benefited in a marked degree by the works schools so wisely instituted by the Admiralty.

Private firms have been slow in following the lead of the Admiralty. Previous to the war there were several progressive employers who, recognizing the value of a technical training, encouraged the attendance of their young employees in part-time day classes in technical schools. Others provided special classes in their works for instruction in trade processes. Very few employers established works schools in which the training included scientific

instruction. Many who recognized the value of technical training argued that, since any boy who has been trained in a works school at considerable expense to the employer is free at the end of his training to enter other works, those who provide special technical training are undertaking a service which should either be shared by all employers or be undertaken by the State. The Education Act, 1918 (*q.v.*), has provisions which weaken the force of this argument.

The great European War has shown with startling effect our dependence upon other nations which have paid greater attention to the application of chemical and physical science to industry. The result has been that, in the necessary reconstruction of industries for the production of war material, there has been a great demand on our trained scientific and technical students, and a better appreciation of the value of scientific education. Interest in methods of training has been stimulated, here and there works schools have been started, but no general movement has taken place. Industrial unrest, as well as the uncertainty as to the effect of the Education Act, have probably delayed an active forward movement on the part of employers.

**General Aims of Schools Held in Connection with Works.** An examination of the schemes already in operation shows a considerable difference in the objects in view and in the curricula. These differences, whilst sometimes dependent on the needs of a particular industry, often depend on the ideals in the minds of those who are responsible for the organization. The schemes are of the following types—

(a) **CONTINUATION OF ORDINARY SCHOOL EDUCATION.** The provision made by Messrs. Cadbury Bros., Bourneville; Messrs. Rowntree, York; Messrs. Selfridge, London; Harrod's Stores, London; Messrs. Lever Bros., Port Sunlight; and some other firms where the labour is largely unskilled, are parts of a general welfare scheme for employees, and anticipate the Education Act in the provision of continued general education. The schemes provide for the vocational training of the employees by special classes in shorthand, typewriting, and other commercial subjects. These part-time day classes, whilst assisted and encouraged by the employers, are often held in schools provided by the local education authority.

(b) **TRAINING IN SPECIAL SUBJECTS OF DIRECT APPLICATION TO INDUSTRY.** This is the aim of the schemes in operation at most of the works schools, or schools held in direct connection with works. Young employees attend from three to eight hours per week, and are paid wages during attendance. Examples are found in the works of Messrs. W. H. Allen & Co., Bedford; the Austin Motor Co., Birmingham; and the British Westinghouse Co., Manchester. These schools are in existence mainly for the purpose of training young men in the scientific principles which underlie engineering practice. The subjects of instruction are similar to those of the technical schools.

(c) **CORRELATION OF HIGHER SCIENTIFIC EDUCATION WITH INDUSTRY.** The correlation of scientific instruction with industry can be done most effectively in the works. The British Westinghouse scheme, which was in operation before the war, and the Austin Motor Co.'s scheme, which was started in 1917, offer special opportunities to graduates of universities to be trained under instructors who

have received a university education, and who have had experience of the requirements of a works. This correlation of university education with industry, if extensively adopted, should prove of the utmost value to the nation. Hitherto, although many mechanical engineering firms have been willing to admit university graduates as premium apprentices, very few have utilized their education to the best advantage.

**Relation to Education Act (1918).** The future of works schools will depend largely on the administration of the Education Act. Section 10 of the Act requires every young worker under 16 years of age to attend school for 320 hours every year. After the period of seven years from the appointed day, the compulsion will apply to all workers under 18 years of age who have not received satisfactory whole-time education up to the age of 16, or reached the standard of matriculation of a recognized university. The standard of exemption indicates that the continued education aimed at is of a general character. There are reasons why special scientific training applicable to industry should be encouraged. The Act makes provision under Section 3 (*b*) for co-operation with universities for lectures and classes for scholars for whom instruction by such means is suitable; and, under Section 23, aid may be given to teachers and students to carry on research in connection with an educational institution. These sections clearly provide for higher education, and there is no reason why a works school should not be classed as an educational institution.

The Act, whilst making no direct provision for works schools, has wisely guarded against the exploitation of such schools for the purpose of training skilled operators. Under enlightened control, the larger industrial undertakings will be able to do a great national service in promoting the education of young people not only in the scientific principles which underlie the work of the factories, but in the provision they make for the physical, mental, and moral development of the young life. There is every reason why a works school should continue the functions of the best schools in promoting the corporate life of the employee. There is often so much dullness and monotony in the routine life of a factory, that not only is individuality crushed, but the employee lives in an atmosphere of unrest and discontent. It will well repay employers, even where the establishment of works schools are unnecessary or impracticable, to study the welfare of the young employees and to provide for adequate supervision with the aim of making the life of the works more interesting, and to encourage by every possible means the development of the intelligence and personality of the worker.

The Education Act will fail in its beneficent purpose unless there is a wise and liberal interpretation of its provisions by officials and inspectors, and a determination on the part of educationists and employers of labour to carry out its spirit. If this is done, the continued education contemplated by the Act will result in a wonderful development in the products, human as well as material, of the factories of the country.

J. E.

**WOTTON, HENRY.**—Of Corpus Christi College, Cambridge; and rector of Wrentham, in Suffolk; was brought up in the family of Dr. Meric Casaubon. Wotton wrote *An Essay on the Education of Children in the First Rudiments of Learning*,

together with a Narrative of what Knowledge William Wotton, a child six years of age, had attained unto, upon the Improvement of those Rudiments, in the Latin, Greek, and Hebrew Tongues (London, 1753). After emphasizing the fewness of thoroughly capable tutors and the fact that it is not every child that will become a great scholar, Wotton deals with the method of teaching. First, careful and exact pronunciation in the vernacular; then the teaching of Latin accidence with as few rules as possible (*i.e.* accidence should be taught as "natural grammar," and rules only introduced as "occasion in reading" suggests). Begin at once with reading Latin authors, preferably, for Latin or Greek, the Gospel of St. John. Then, any good author, and just so long a lesson as preserves interest. With the Gospel and a book of some classical author read, rudimentary grammar should be completed and speaking of Latin be practised. Wotton then proceeds to the description of his "experiment" with his child William because "there is no disputing against an experiment." At 3½ years, the father chalked large letters on the walls, for him and for the rest; he learned reading from the tombstones of the churchyard near the parsonage. He learned reading from the Bible, but he had no set lessons, and studied only when his father was with him. He then similarly began to read Latin books. At 4½ he read St. John's Gospel in Latin, and translated it into the English, which he already had read. By attaching the child to himself, and by forbidding any work to be attempted when the child was not with him, Wotton led his child to read the Greek text of St. John, when he had mastered the English and Latin. In Greek he did not begin with the alphabet, but "by the words showed him the letters." Wotton then took the child through a Hebrew Psalm. By 5 years of age, he began Genesis in Hebrew, and St. Matthew in English, Latin, and Greek. At 5½ he put him into Homer and Virgil. At 6, the child could listen advantageously to a Latin author read aloud, and followed the Greek Liturgy and Greek Testament in church—as well as older children theirs in English. As to the boy's attainments, Sir Thomas Browne, the author of *Religio Medici*, bore testimony, after conducting an examination in 1672. F. W.

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**WOTTON, SIR HENRY** (1568–1639).—Diplomatist, and Provost of Eton College (1624–1639); was educated at Winchester and New College, Oxford, and trained in the school of travel; friend of statesmen and scholars, at home and abroad; secretary, with Henry Cuffe, of the Earl of Essex; for fourteen years ambassador in the Court of Venice. In 1609 he warmly supported an educational scheme, suggested by Paolo Sarpi to King James I for the establishment of a Protestant College on the borders of Italy, to train Protestant missionaries from England and elsewhere to learn Italian; to be trained in disputations; and to travel through Italy in the cause of Protestantism. Like the corresponding earlier English scheme at Chelsea College (*q.v.*), the plan fell through. Wotton was the writer of the "pleasant" definition of an ambassador: "Legatus est vir bonus peregre missus ad mentium causa Reipublicae," which he

translated: "An ambassador is an honest man sent to lie abroad for the good of his country."

In 1624, Wotton became Provost of Eton, his immediate predecessors being Thomas Murray, tutor to King Charles I, and Sir Henry Savile (*q.v.*). Wotton was a "constant cherisher" of youth at Eton. He set up two rows of pillars on which were "choicely drawn the pictures" of the most famous Greek and Latin historians, poets and orators. He would never leave the school "without dropping some choice Greek or Latin apophthegm or sentence that might be worthy of a room in the memory of a growing scholar." Robert Boyle, an Etonian boy of the time, says that Wotton "was not only a fine gentleman himself, but very well skilled in the art of making others so." He took boys into his own house, and observed their discourse and behaviour with a view to "completing his intended book of education," thus showing himself an investigator in applied psychology. Only a fragment of his educational work was completed, entitled *A Philosophical Survey of Education, or Moral Architecture*.

Wotton offers a psychological basis (though he does not call it such) by insisting in his first section: "There must proceed a way how to discern the natural capacities and inclinations of children." He invites the attention of those who have charge of children, to note their "witty excuses"; their jests, and incidents which please them; their play; their dreams; not only articulate speech, but also smiles and frowns. The study of temperaments and dispositions of children, in his view, was necessary to the task of training and developing them.

Wotton offers a number of aphorisms on education, with accompanying comments: "Every nature is not a fit stock to graft a scholar on," on which Wotton remarks that friends of children, who require them to go to college, when they show no special fitness, should provide "a room for them in some hospital, when they are old." F. W.

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**WRANGLER**.—The title given, previous to 1906, at the University of Cambridge, to candidates who were placed in the first class in the public mathematical examinations in honours. The student who headed the list was known as the Senior Wrangler. Until 1882, the successful undergraduates were arranged in order of merit, as *wranglers*, *senior optimes*, and *junior optimes*. Subsequently the examination was divided into two parts, success in the first being a qualification for admission to the second. In 1907 the arrangement of names in order of merit ceased, and the title "Senior Wrangler" disappeared.

**WRESTLING**.—This is a very ancient sport. We see pictures of it in Egyptian tomb paintings. With the Greeks, too, in their games, we know that next to racing it was held in highest esteem.

In Japan it is asserted that 700 years B.C. the Emperor, or Mikado, encouraged the sport. A distinct race seems to be brought up to the practice of wrestling amongst the Japanese. Wrestlers are encouraged to put on weight, the larger and stouter they become the better chance they have of victory. With these people, wrestling is divided into two sections. Wrestlers rush forward and meet with a



shock, separate, and again rush at each other, then resort to another and different trial of strength; rush together and, seizing each other by body or arms, after securing a firm grip, endeavour to lift one another and hurl the person so lifted clean off the stage.

Indian wrestling is not unlike Japanese wrestling. After a great deal of butting and dodging, the wrestlers clutch at one another's neck, head, and wrists, and violently butting head against head, twisting, and wrenching, attempt to throw one another to the ground. It is not until one of the competitors is forced on his back and held there that the bout is over.

In Turkey, wrestling is of the "catch-who-catch-can" style. No kicking is allowed. The thrower must lay the vanquished man upon his back so that both shoulder blades touch the ground at the same time.

In Ireland we have what is called "collar and elbow" wrestling. The wrestler takes hold of his opponent's collar with one hand, and his elbow with the other. The fall is won when the victor forces his opponent to touch the ground with hand, knee, back, or side.

In England we have two forms of wrestling, that practised in Cornwall and Devon, and that practised in Cumberland and Westmorland. Cornishmen wear a strong canvas jacket; the wrestlers lay hold of these jackets to give what they call the "Cornish hug," then using their feet cleverly, not only to trip but kick, they attempt to fling one another.

**Cumberland and Westmorland Wrestling.** Wrestling in Cumberland and Westmorland consists in putting neck to neck and attempting as far as possible by sloping the back and keeping the feet far apart, to prevent one another from getting best hold. When hold is at last got, the wrestlers close and attempt by quick play of the legs, by "click," by "hype," "buttock," or "cross-buttock" to throw one another. In the old days, in Cumberland and Westmorland, wrestlers depended upon a light hold and quick feet play. In these later times they have developed fast holding instead of light holding, and attempt to "tew" or force their opponent down by sheer weight. It is to be doubted if the play in the wrestling ring now is as full of art as it was fifty years ago. A man must be thrown clean, that is to say that if the knees or shoulders of both wrestlers touch the ground together it is reckoned a "dog" fall, and the wrestlers must try again.

There is no school for wrestling except the watching of men engaged in the game. A boy may be taught the difference between a "click," "back heel," "hype" and "buttock" stroke by any one who has wrestled, but nothing but constant practice will enable him to learn how best to use his feet, and when to use his weight.

H. D. R.

**WRITING, FREE-ARM.**—Arm writing, or free-arm writing, is a term that has of late years been applied to a method of writing, wherein the thumb and fingers are used simply to hold the pen, but take no part whatever in the actual formation of the letters; in fact, by this method a handless man could write quite perfectly, provided he had some attachment for holding a pen. The whole of the movement is derived from the large muscles of the arm, while the forearm rests upon the desk, and

the soft tissues encasing the forearm allow sufficient movement to form all letters under 1 in. in size.

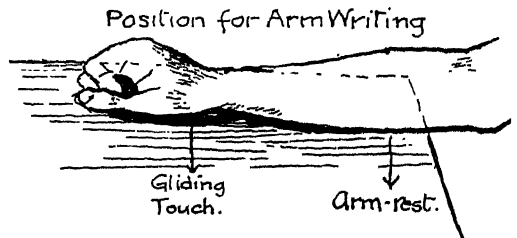
This method of writing is, of course, totally different from finger writing, which is common in all schools, and which is responsible for much weariness of wrist and fingers in later years, unless arm writing takes its place, as it does sometimes, quite *unconsciously* in most cases.

Recently there has been an attempt to include this much more effective method of performing rapid and continuous writing in the school curriculum, especially in the case of senior classes and commercial schools; but the difficulty is that there are very few systematized courses of instruction, without which the subject cannot be taught with any measure of success. Considering the many advantages which this method has over finger writing, it is a great pity that the subject is not definitely taught in all schools as an alternative to finger writing. An arm writer can write at a uniform speed of twenty to thirty words a minute for hours, without any fatigue, and without any loss of legibility. The reason for this lies in the fact that the large and powerful muscles of the arm are used, instead of the small and more delicate muscles of the fingers and wrist.

This method of writing also allows a variety of styles, and in no case does it interfere with individuality. By using a broad nib or a fine nib, and altering the angle of the pen, with even pressure on the paper, many beautiful specimens of writing have been produced.

**Method of Instruction and Practice.** The formation of three essential habits must be cultivated: (1) Correct position; (2) rapid arm movement; (3) systematic exercise at uniform speed.

As regards (1), the *square front position* is the best—a position similar to that for reading and drawing. Both arms are placed on the desk in front of the body, with the elbows just about 2 in. over the edge. The large muscle of the forearm, just in front of the elbow, is the *arm rest*, and all the movement takes place from this point.



(2) If the hand is laid flat upon the desk first, and then closed to form a hard fist, this muscle stands out hard and firm upon the edge of the desk. The fist can then be pushed out and in the cuff, round and round without allowing the sleeve to slide over the desk. These two movements are the foundation of all arm-writing, and they can be developed and trained to a remarkable degree of precision and rapidity. Counting 1, 2, 3, etc.—20, at the rate of three or four per second while performing these movements, helps greatly to establish a uniform speed and automatic action.

The pen should now be taken without ink, and the same two movements practised for a minute or two, between lines about  $\frac{1}{2}$  in. apart. The nails of the third and fourth fingers, and the soft pad on the under side of the wrist (*gliding touch*) must

glide smoothly all the while, and the whole hand and wrist must have the same motion as the pen. The finger and thumb must be carefully watched at all times to see that they do not act. The paper should not lie parallel with the edges of the desk but the top right-hand corner should be tipped up at least 2 in. so that the hand can travel right across the paper, without it being necessary to move the arm-rest on the edge of the desk. The left hand can be employed in keeping the paper in position, and in pushing the work further and further up, as the writing approaches the bottom lines.

(3) Systematic exercises should include plenty of practice in making ovals and spirals (in both directions), upper-turns and lower-turns, loops, etc., all made at a definite rate of about four per second. These should be followed by the repetition of groups of letters, capital and small, graded in order of difficulty; and, finally, by the repetition of suitable words.

Repetition and counting while writing are held to be great factors towards success in the earlier stages of learning, because they induce mechanical effort and uniform speed in writing; but both should be gradually discontinued as the pupil advances. No counting is possible when sentences come to be written.

G. C. J.

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**WRITING, THE PSYCHOLOGY OF.**—Writing is the graphic representation of oral speech, and should be evaluated on the basis of facility of production and facility of interpretation. Beauty of form is merely a function of these.

Some individuals have an "artificial" style of writing; but the majority a "natural" style, with individual peculiarities as regards (1) flourishes; (2) angles in place of curves, and *vice versa*; (3) slope; (4) connection of letters one with another; (5) spacing of letters and words; (6) size of letters, and relative sizes of letters and parts of letters; (7) observance of lines; (8) form and position of signs like the dot on the *i*; (9) pressure; (10) speed.

Recent experiments on the copying of signatures seem to show that some writers do not get rid so easily as others of their individual characteristics. These characteristics depend chiefly on the nature of the innervations from the cerebral cortex, the hand itself playing only a secondary part.

The so-called masculine type exhibits originality, writes with more pressure than the feminine, somewhat more slowly, and more completely in total impulses. The pressure is rhythmically distributed over the word, so that generally the maximum pressure lies at a definite point in each word. It has been maintained that the pressure maxima correspond to the accents in oral speech.

The feminine type exhibits conventionality, and the pressure decreases with the speed; whereas it increases in the case of the masculine type.

Young children write each letter with equal pressure. Their writing movement is excessive in extent

and intensity, partly as it is an activity with little instinctive background and partly, sometimes, owing to wrong methods of teaching. Before beginning with writing as such, the child should first have some acquaintance with the use of the brush, so as to develop a good free-arm movement, and also to enable him later on to hold the pencil or pen lightly. The most favourable type of movement is one which combines the use of the arm, of the wrist, and of the fingers, so that each does the work for which it is best adapted. With increasing age, the writing of the child approximates to the "natural type."

As regards methods, the synthetic method starts with the elements of the letters or with the letters themselves, and then proceeds to syllables and words. The analytic method requires a word to be written as a whole, and passes later to the treatment of its elements. Use should be made of both analysis and synthesis. The synthetic method, by laying stress on the correct formation of letters, prevents the acquisition of careless writing habits; the analytic method is better adapted for ensuring speed and fluency.

Should the teaching of writing or that of reading come first, or should both proceed contemporaneously? In the Montessori method, reading and writing are taught contemporaneously; the child's mind receives them as one, and it is only later that they come to constitute the two diverse processes of reading and writing. Writing, however, develops much more easily than reading in the little child, and Montessori pupils learn to read by writing. The success of this method is proof of the desirability of associating reading and writing as closely as possible.

LL. W. J.

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**WURZBURG, UNIVERSITY OF** (founded in 1582 as a Catholic institution).—This was controlled by Jesuits until 1773. During this period, it was an important centre for Catholic students of theology and philosophy. After the Napoleonic Wars, it was reorganized under the title of the Royal Bavarian University, with faculties of arts, science, law, medicine, and theology. Connected with the University are a botanical garden, and museums of mineralogy, geology, and art; and a library of 400,000 volumes. About 1,600 students are usually in attendance, and, under certain conditions, permission is given to women to attend lectures.

**WYSE, SIR THOMAS** (1791–1862).—Of Waterford, educated at Stonyhurst and Trinity College, Dublin, studied for the law in London, travelled in Italy and the East, and on his return to Ireland, in 1825, took a leading part in the agitation for Catholic emancipation. In 1830 he entered Parliament and at once presented a plan for Irish education, followed by a Bill on the subject. The Government adopted some of Wyse's suggestions and established a national board of education in Dublin and the "Instructions" founding the

board reproduced verbatim the provisions of Wyse's bill. A further bill in 1835 led to the appointment of a committee of inquiry, with Wyse as chairman, which recommended intermediate

education, provincial colleges, and a second Irish university. In 1837 Wyse published *Educational Reform*, and helped to found the Central Society of Education.

## X

**XAVIER, ST. FRANCIS.**—The "Apostle of the Indies" (1506–1552) and a member of a noble Basque family, lectured on philosophy at an early age in Paris, where he made the acquaintance of Ignatius Loyola (*q.v.*), and became associated with him in the foundation of the Jesuit Society (1534). In 1541 he was sent by John III of Portugal as a missionary to the Portuguese colonies in the East. He roused religious feeling among the European settlers, and was very successful in converting natives in India, Ceylon, and further east. He spent two years in a mission to Japan, and planned another to China, but intrigues and opposition among the merchants ruined his schemes and broke his spirit, and he died on the eve of what might have been his greatest undertaking. Xavier was canonized by Gregory XV in 1622, his day being 3rd December.

**XENOPHON AND EDUCATION.**—Xenophon explains his views on Education briefly in the *Polity of the Lacedaemonians* and the *Oeconomicus*, and at more length in the *Cyropaedeia* (Book I). If the *Polity* be considered first, it will be seen whence he obtained the system he sets forth in the longer treatise. In this, the period of education extends from youth until mature manhood. Lycurgus sets over the Spartan boys and youths a State-appointed guardian with complete authority, the *παιδονόμος*. The system was a training in self-control and endurance. To harden the feet for running and climbing, the boys went barefooted. A single garment was worn at all seasons, and the simplest food was served at a common mess. Any citizen, in the absence of the *παιδονόμος*, might inflict punishment.

The "*Cyropaedeia*." The Persian Utopia which Xenophon described in the *Cyropaedeia* is really Sparta. The citizens, from the first, desire nothing unfitting. To ensure this, they have the 'Αγορά, or Free Square. Here are situated the palaces and other Government buildings, forming a State-provided centre of culture for the citizens. The trading and work is carried on in another quarter, to maintain the quiet necessary for successful education. The square is divided into four parts: one part for the boys, one for the ἑφηβοί or youths, another for the men of mature years, and the fourth for those past military service. There are twelve officers over each of these divisions. The boys and youths are governed by such elders as seem most able to aid their development. The boys spend time in learning justice. For this purpose, they prefer charges against one another for robbery or assault. The crime, however, worthy of the severest

punishment is ingratitude, for those guilty of this are likely "to be neglectful of their gods, their parents, their country, and their friends." In illustration of the practical lessons in justice, he tells the story of the Big Tunic and the Little Tunic (*Cyr.* I, iii, 16).

The boys learn self-control mainly through the example of their elders, who live temperately day by day. At the age of 16 or 17, they pass into the class of ἑφηβοί. Here they remain for the next ten years, guarding the city by night and engaging in frequent hunting expeditions, at the same time practising abstinence and revising the lessons of boyhood.

The points of interest in Xenophon's system arise mainly through contrast with modern ideas. Bodily punishment is a recognized means of education. "Fathers develop self-control in their sons by tears, and masters teach good lessons by the same methods."

Nature study must form part of a boy's training (*Cyr.* VIII, viii, 14), but for a strictly utilitarian purpose, viz., that they may be able to discern which plants are fit for human food.

The "*Oeconomicus*." In the actual method of teaching, Xenophon believed in "direct appeal and question" (*Oeconom.* XIX). He recognized the need of an educational atmosphere if efforts were to gain the best results. The Free Square has sometimes been called a university. It falls short, however, of the mediaeval and modern ideal. The teaching aimed merely at political efficiency, and offered specialization in two branches only—the legal and the military.

M. HOOKER.

**XIMENES, FRANCISCO** (1436–1517).—A member of an ancient family in Castile; was educated at Salamanca and Rome; and after spending three years in the Franciscan monastery at Toledo, became, much against his own wishes, Archbishop of that city. He continued to live the austere life of a monk, devoting the revenues of his see to works of religion and charity, expending large sums on the foundation of churches, hospitals, schools, and convents. He was confidential adviser of Queen Isabella, and chief minister of Ferdinand. As a statesman he broke the feudal power of the nobles, built up that of the Crown, and mercilessly crushed the conquered Moors. He became a cardinal in 1507, and as Grand Inquisitor caused the death of more than 2,000 persons. Under his auspices, the Complutensian *Polyglot Bible* was published in Alcalá, in 1502–1517, in Hebrew, Greek, and Chaldean, with a Latin version for each language and the Vulgate version. (See also SPAIN, THE RENAISSANCE IN.)

## Y

**YALE, ELIHU** (1668-1721), was born at Boston, Massachusetts, and was son of one of the original settlers in the colony of New Haven. He left America at an early age, and in 1687 became Governor of Madras. He acquired great wealth in India, and made large gifts to the Collegiate School which was founded in 1701 at Saybrook, near his birthplace. When the school was moved to New Haven in 1718 the first building was named after Governor Yale, and later the whole institution took the name "Yale College." Elihu Yale died in England, and was buried at Wrexham. (See also **YALE UNIVERSITY**.)

**YALE UNIVERSITY.**—In New Haven, Conn., and the third oldest American institution of higher education. During the two centuries and more of its existence, it has had over 34,000 graduates, of whom upwards of 18,000 are now living. Its permanent funds are to-day \$24,000,000; it has sixty-three buildings (dormitories, laboratories, libraries, and gymnasiums); its libraries contain over 1,000,000 volumes; it has a Faculty and administrative force of 500 men; its students number 3,300, divided as follows: Graduate School, 345 men and women; Yale College, 1,479 men; the Sheffield Scientific School, 1,020 men; Art School, 49 men and women; Music School, 99 men and women; Forestry School, 25 men; School of Religion, 106 men; Medical School, 58 men, with whom a limited number of women from approved colleges will be admitted hereafter; and Law School, 119 men. Yale is governed by a President and Corporation, divided into ten life-term successors to the original trustees, and six 6-year-term graduates elected by the alumni at large. The University to-day occupies the whole or part of eleven city squares, branching, in general, north and west of the site at the west side of the New Haven Green, where its first building was erected.

**Historical Sketch.** Founded in 1701 by a group of coast-town Connecticut Congregational clergymen, the "Collegiate School," and then "Yale College" (so named in honour of Elihu Yale of London, whose gifts made the first building possible), was originally intended to be, and remained for its first century and over, a stronghold of conservative Calvinistic theology for southern New England. During the opening administrations of Rev. Abraham Pierson (1701-1707), Rev. Samuel Andrew (1707-1719), Rev. Timothy Cutler (1719-1722), Rev. Elisha Williams (1726-1739), Rev. Thomas Clap (1740-1766), Rev. Naphtali Daggett (1766-1778), and Rev. Ezra Stiles (1778-1795), Yale progressed slowly but steadily, and developed into a powerful if conservative force in New England history.

Modern Yale began with the administration of the first Timothy Dwight (1795-1817). He first brought the earlier Puritan course of study into touch with contemporaneous English culture; planned the establishment of independent schools in theology, medicine, and law; doubled the number of students, and first attracted those southern and western students whose notable increase since has given

Yale its typical character of a "national" American university; and added to the Faculty men like Jeremiah Day in mathematics, James L. Kingsley in languages, and Benjamin Silliman, senr., in chemistry.

President Jeremiah Day's administration (1817-1846) continued the development begun by Dwight. He added such modern subjects of study as political economy, modern languages, and law; founded one of the most famous American art galleries by buying and housing on the Campus the historical paintings of John Trumbull; built the present Old Library; added largely to the institution's funds; began the present graduate school; and added to the Faculty such scholars and teachers as Theodore Dwight Woolsey in Greek, Thomas A. Thacher in Latin, Denison Olmsted in mathematics and natural philosophy, and William A. Larned in rhetoric.

Until the mid-nineteenth century, Yale had remained conservative toward modern scientific investigation and theology, the dominating intellectual interests of the time. Thus all but one of the leaders of the so-called "New England Theology" had been Yale graduates. Those who went out from Yale to found other institutions on the frontiers took with them the missionary spirit of the Puritans. President Theodore Dwight Woolsey's administration (1846-1871) covered a new era in American life, in which the institution was to do its part. When he retired, he had broadly developed the institution along all lines. He attracted to the Faculty of the college a group of men of pre-eminent gifts: James Dwight Dana in geology, James Hadley in Greek, Othniel C. Marsh in palaeontology, Hubert A. Newton in mathematics, Cyrus Northrup in literature, Josiah Willard Gibbs in mathematical physics, Elias Loomis in natural philosophy, George P. Fisher in ecclesiastical history, William Dwight Whitney in comparative languages, and Noah Porter in mental and moral philosophy. The world-wide modern era in natural science was then coming in. John P. Norton, followed by Samuel W. Johnson, in agricultural chemistry, and Benjamin Silliman, junr., in applied chemistry, were the forerunners of a long line of brilliant Yale scientists, whose careers form splendid pages in American intellectual history. The first degrees in this new department (which in 1860 became the Sheffield Scientific School) were given in 1852. To its Faculty came men like Daniel C. Gilman in physical geography, and Daniel C. Eaton in botany; and like Thomas R. Lounsbury in English literature, whose work was to be pioneer in creating a new American education.

President Porter's administration (1871-1888) brought still more brilliant scholars and teachers to Yale, in men like William Graham Sumner in political and social economy and science, Francis A. Walker and Henry W. Farnam in economics, Russell H. Chittenden in physiological chemistry, Thomas Day Seymour in Greek, Henry A. Beers in English literature, and George Trumbull Ladd in psychology and philosophy.

Timothy Dwight (1886-1899) secured for the

institution the title "University," which it long had been except in name; added much to the funds and largely increased the number of students; added fifteen new buildings, and brought out such teachers as Arthur T. Hadley in economics, William R. Harper in Semitic languages, and George Burton Adams in history. The material growth of Yale during this period had been unparalleled previously, but has been carried even to a higher degree of success under President Arthur T. Hadley, who was inaugurated in 1899. President Dwight left the solid foundations, conservatively built, for the influential University which President Hadley is now erecting.

**The Modern University.** The striking characteristics of Yale since its establishment have been the plain living and high thinking of its Faculty, the famously democratic life of its students, and the important contributions made by both teachers and graduates to the country through public service, particularly in the church, education, and public office. Yale men have founded or been first presidents of eighteen American colleges and universities, including Princeton, Columbia, Dartmouth, Western Reserve, Ohio, Illinois, Beloit, John Hopkins, and Chicago. The two great American lexicographers, Webster and Worcester, were Yale graduates. Scientific pioneers like Eli Whitney of cotton gin fame, and S. F. B. Morse, of telegraph fame, graduated from Yale. Most of the influential American missionary movements have had their rise with Yale graduates. Her educational organization still is built upon the first-degree undergraduate departments. Here the work is done in a four-year liberal course leading to the B.A. (with Latin) and the Ph.B. (without Latin), and in four-year courses in engineering and chemistry leading to the B.S. degree, which are now being developed into courses leading to post-graduate two-year study. Yale's professional schools admit students who have

In American educational history, Yale University stands pre-eminent for the character-making life-work of such teachers as have been mentioned in this article.

The organization of the various courses of study, with the degrees to which they lead, and the periods of study or research they require, is exhibited in the table shown on this page. E. O.

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#### YONGE, CHARLOTTE MARY (1823-1901).—

Few women writers have exercised so great an influence on the educational world of their day as Charlotte Yonge. She created a new type of fiction for girls; her books were something between stories and novels, and dealt with questions of religion, history, and social life. They numbered over 150, and went forth, like the few volumes of Jane Austen, from a Wiltshire village, where her uneventful life was spent.

Her parents settled on their marriage at Otterbourne, near Winchester, and there Charlotte and her younger brother Julian were born; a large family of cousins, with whom visits were interchanged, evidently formed the model for the large families which are so marked a feature of her books. She was educated at home, learned classics and mathematics, modern languages, botany and conchology, and was carefully instructed in religion. She taught with enthusiasm for seventy-one years in the village Sunday school.

The strongest influence on her life was that of John Keble, who became incumbent of the neighbouring parish of Hursley in 1835. He prepared her for confirmation; he kindled her interest in the Oxford Movement; he corrected her proofs when she began to write, and guided her great literary abilities into the channel they never left. For more than sixty years she wrote books of history, fiction, and religious instruction, but always from the same standpoint, and with the same object in view—that of exemplifying and upholding the purest teaching and the loftiest ideals of the English Church.

*The Heir of Redclyffe* (1853) had an extraordinary popularity, not only with the public for whom she wrote, but with men like Charles Kingsley, William Morris, D. G. Rossetti, and Guizot. The only time she left England was to visit M. Guizot's family at Val Riches, near Lisieux, in 1869.

Others of her most popular books were *Heartsease* (1854), *The Daisy Chain* (1856), *Dynevor Terrace* (1857), and *The Pillars of the House* (1873). The characters in her books are as numerous, and in some instances as well defined as those of Dickens himself.

Her historical romances should live from their accuracy as well as their interest. *The Chaplet of Pearls*, dealing with the Massacre of St. Bartholomew, is perhaps the most cleverly constructed as a whole; but Richard the Fearless, in *The Little Duke*, Edward I in *The Prince and the Page*, Kaiser Max in *The Dove in the Eagle's Nest*, and the Scotch captive, James I, in *The Caged Lion*, are

Department.	Course.	Degree.
Philosophy and Arts	4 years	B.A. (Bachelor of Arts)
		Ph.B. (Bachelor of Philosophy)
		B.S. (Bachelor of Science)
		Ph.D. (Doctor of Philosophy)
		M.A. (Master of Arts)
	2 years (post-graduate)	M.S. (Master of Science)
		C.E. (Civil Engineer)
		M.E. (Mechanical Engineer)
		Mn.E. (Mining Engineer)
		Met.E. (Metallurgical Engineer)
Theology	4 years	M.F. (Master of Forestry)
	3 years (post-graduate)	B.Mus. (Bachelor of Music)
		B.F.A. (Bachelor of Fine Arts)
		B.D. (Bachelor of Divinity)
Medicine Law	6 years	M.D. (Doctor of Medicine)
	3 years (post-graduate)	{ LL.B. (Bachelor of Laws) B.C.L. (Bachelor of Civil Law)

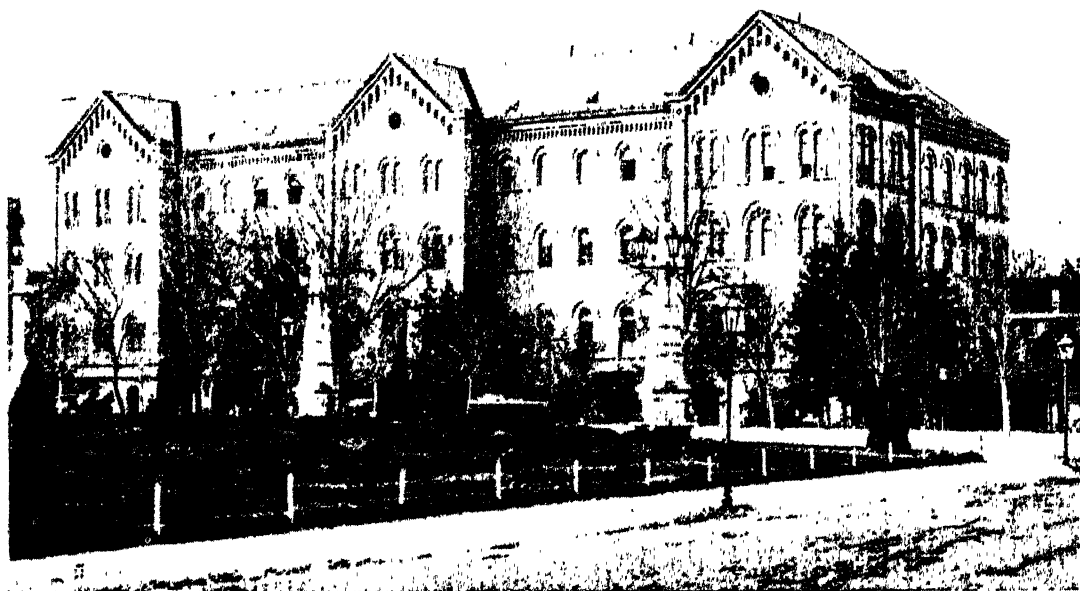
received approved college education, while in her newly-organized School of Religion, Yale is a pioneer in a social public service of much promise to American needs. Yale, however, has from the first depended for her educational usefulness on the men who have filled her teaching chairs. The English rather than the German educational theory has been true of Yale, and continues so.



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PLATE XCVII





characters made real by her pen for children of many generations.

Some of her works made their first appearance in *The Monthly Packet*, which she edited from 1851 to 1898, the last nine years in collaboration with Miss Coleridge; she also edited and contributed to *Mothers in Council*. She died in March, 1901, at Enderfield, near Otterbourne, to which she had moved in 1885. Shortly before her death a scholarship in her honour was founded in the Winchester High School for Girls. H. O'B. B.

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ROMANES, ETHEL. *Charlotte Mary Yonge: An Appreciation*.  
SICHEL, EDITH. Article in the *Dictionary of National Biography*.

#### YORK (ST. JOHN'S) TRAINING COLLEGE.—

This is one of the oldest of the training colleges for schoolmasters, but the great extensions and improvements which have been made since it was opened in 1840 have rendered it one of the best equipped. The Principal, the Rev. E. E. Nottingham, M.A., has devoted much energy to modernizing the institution and providing accommodation for all the educational and social needs of the students. The staff includes, besides the principal, a number of graduates in honours of the older universities, and under their guidance the students take courses in literature, languages (modern and classical) and mathematics in preparation for the certificate and university examinations. Special attention is also given to manual training. Among distinguished men who have been trained at York may be mentioned Professor Lumby, D.D., Fellow of St. Catherine's College, Cambridge, well known for his writings on theology and English; Dr. Varley Roberts, Doctor of Music and famous as a choir-master; and Mr. A. Buckle, B.A., for many years superintendent of the York Blind School.

The accommodation provides for 105 resident students, and a few day students are also admitted.

**YORK, ST. PETER'S SCHOOL.**—One of the most ancient schools of England, the existence of which can be clearly traced back to the days of Bede, the cathedral school of York became famous under two great masters—Albert the archbishop (734), and Alcuin (c. 776), the friend and adviser of Charlemagne. Throughout the darkest days of the Middle Ages the school flourished, and it is honourably mentioned in documents of the twelfth and thirteenth centuries. In 1287 the minster was rebuilt, and the site of the schoolhouse was covered by the new and enlarged edifice. The Dean, therefore, provided fresh quarters for his scholars in one of the prebend houses. In 1535 the school occupied premises belonging to the Abbey of St. Mary, called *Conclave* or *The Clee*, and the dissolution of the monasteries rendered a removal necessary; in 1557, therefore, the Horsefair Hospital, an ancient almshouse for decayed chaplains, was presented to the Chapter by Cardinal Pole, and there the grammar school of fifty boys was established. Philip (of Spain) and Mary are thus regarded as the second founders of the school. In 1621 the building was claimed by the Crown under the Chantries Act, and a new charter was obtained. A century later the school was being carried on in St. Andrew's Church; and after yet another century it was transferred to new buildings on the site of the

old Deanery. In 1844 it was removed to its present position at Clifton, half a mile west of the minster, the opportunity having been afforded by the failure of a private school which had erected there convenient buildings. The scheme was revised by the Charity Commissioners under the Endowed Schools Acts in 1898, changes being made in the board of governors whereby popular, as well as ecclesiastical, representation was recognized.

There are now about 300 boys in the school, about a third of whom are boarders. The preparatory school is about 5 minutes distant from the main school. The endowment provides a number of entrance scholarships, and a leaving scholarship of £50, awarded annually; and St. Peter's is privileged to compete also for various exhibitions appropriated to certain North of England, Yorkshire, and East Riding schools. The curriculum is of the usual public school type. The school enjoys a high reputation for the excellence of its athletic records.

#### YOUNG MEN'S CHRISTIAN ASSOCIATION (Y.M.C.A.), EDUCATIONAL WORK OF THE.—

Founding in 1844 a society for spiritual fellowship, George Williams quickly saw that the intellectual needs of young men must be met by the Association. Debates and lectures led to the formation of regular classes, and when, in 1854, the Y.M.C.A. secured 165 Aldersgate Street, commercial classes, especially in modern languages, together with special courses in magnetism, electricity, telegraphy, first aid, etc., proved most successful.

In 1881 Exeter Hall was taken. The educational work was strengthened, and the commercial side developed to include such subjects as advertising, estate agency, journalism, salesmanship, and the technology of paper and textiles; and Civil Service courses were established which soon secured more Junior and Second Division appointments than any other institution in London.

Meanwhile, at 59 Cornhill, classes for the examinations of the Institute of Bankers were developed, and became pre-eminent for the number of students and the high standard of the training given. Latin, Greek, logic, history, and mathematics were added to the curriculum, and a special course for the London University matriculation examination was established.

With the opening of the London Central Y.M.C.A., Tottenham Court Road, W.1, in 1910, the George Williams College for day and evening students found a complete floor allotted to it, and the range of its work has increased accordingly. Lectures and classes are open to non-members, and the number of students has mounted to nearly 2,000 the session. In addition to the Matriculation and Intermediate Examinations of London University, those for Accountancy and Auditing, Auctioneering and Estate Agency, the Institute of Bankers, the Chartered Insurance Institute, the Chartered Institute of Secretaries, The Surveyors' Institution, Law and Divinity, Boy Clerks'hips, Assistant Clerks (Abstractors), Customs and Excise Assistants, Second Division Clerks'hips, and other commercial and professional examinations are taken by the students, who have gained a long list of distinctions. The college stands third in order of merit among those which prepare pupils for the Royal Society of Arts Examinations, and has taken many prizes and scholarships at the London Chamber of Commerce examinations. Its policy is now

directed to the development of work in such modern languages as Spanish, Italian, and Russian, and to the encouragement of liberal studies as well as of technical and professional training.

Many of the great provincial associations, such as those at Manchester, Bristol, Liverpool, Birmingham, Glasgow, and Belfast, show a similar record, though, of course, over a shorter period of time. A wider policy of education is likely to be taken up by them in the future.

The war work of the Association, wherever British troops went, included regular weekly lectures in Y.M.C.A. huts by men of literary and scientific eminence, travellers, and authorities on the belligerent countries. All the universities in the country co-operated in providing lecturers and class-teachers. Educational work was also carried on at the canteens and hostels conducted by the Association in munitions centres. The Workers' Educational Association helped materially. Libraries were established in all Y.M.C.A. huts, and special provision for the supply of educational books was made through the Fighting Forces Book Council. Scholarships were founded at the London Central Association for the sons of men of the professional classes killed in the war. (See Y.M.C.A., *THE WAR-TIME EDUCATIONAL WORK OF THE*.)

**Future Developments.** In future the educational emphasis of the Y.M.C.A. will be upon non-vocational and cultural studies rather than upon commercial and technical, though in certain great cities, and in country towns or villages where neither the local educational authority nor private enterprise meets the demand for vocational training, classes of the latter kind will still be carried on. The Y.M.C.A. Universities Committee continues to effect the close co-operation established during the war between the Association on the one hand, and the Universities (especially through their Extra-mural Departments), the chief voluntary bodies engaged in adult education, and the local education authorities on the other. Thus in several areas the W.E.A. has undertaken to organize all three-year and one-year tutorial classes required by the Y.M.C.A., while the Y.M.C.A. will organize the short lecture-courses, the lecture-classes, the miscellaneous lectures, and the study-circles required by the W.E.A. Similarly, adult schools have been formed in a number of Y.M.C.A.'s and the Y.M.C.A. is participating in the week-end schools and summer lecture-schools arranged by the Adult School Union. A correspondence-group scheme of tutorial work in cultural subjects has been arranged between the Y.M.C.A. and Adult School Union, the League of Nations Union and the Y.M.C.A. Some universities are finding lecturers for courses planned by the Y.M.C.A. Local education authorities provide teachers for non-vocational classes recruited by the Y.M.C.A. and the Y.M.C.A. sends students to the Literary Institutes organized by the education authorities. In South Wales all the Miners' Institutes have requested the Y.M.C.A. to arrange their educational programmes. In other districts the Y.M.C.A. is arranging with the universities for joint committees to provide tutorial classes on W.E.A. lines in theological and similar subjects which the W.E.A. is by constitution unable to take up: in this the Y.M.C.A. will act for the churches and other specially interested bodies.

In addition a great deal of less formal educational work is being developed by the Y.M.C.A.

Universities Committee through music (vocal, orchestral, and application), folk-dancing, dramatic societies, natural history clubs, handicrafts, village libraries, etc.

The Y.M.C.A. co-operates with settlements of all kinds, and is developing several of its own. The first actual Y.M.C.A. settlement was the residential one in Oxford Street, Sheffield.

As the work grows, each "division" (containing from one to four counties) in the country is appointing its full-time educational secretary, all the activities within the various divisions being co-ordinated through the Headquarters of the Y.M.C.A. Universities Committee, at 13 Russell Square, with its sub-sections for music, popular lectures, and libraries at the Shakespeare Hut, Malet Street.

Since the Armistice the Adult Education Movement has made great progress throughout the country, and in this the Y.M.C.A. has a notable part, already large and constantly growing.

B. A. Y.

### Y.M.C.A., THE WAR-TIME EDUCATIONAL WORK OF THE.—

The history of the war is a tale of how the impossible was continually accomplished. That applies not only to the military activities of the troops but equally to the provision for their physical, mental, and spiritual well-being made by official and voluntary agencies. Before the Crimea no one thought it possible to send with the troops an army of doctors and nurses, but Florence Nightingale and the Red Cross did it. Until 1914 no European armies on active service had been provided with baths and billiard tables, concerts and cinemas, clubs and writing rooms from the base to the firing line. It is true that the American Y.M.C.A. had rendered service of this kind in the Russo-Japanese war. But nothing like the extent and completeness of the social and religious work done among the troops by the Church Army, the Salvation Army, the Scottish Churches, the Y.M.C.A., and other voluntary bodies had ever been dreamed of before. To these efforts the Y.M.C.A. added a third, which proved the Association's right to use the Red Triangle as a symbol of all-round provision for the whole man's needs. Education for men in training or within the actual war zone would have appeared an absurdity before 1914. The Y.M.C.A. discovered the demand and forthwith applied its usual principle of seeking to supply what was wanted by calling upon the people specially qualified and willing to give it. The long winter nights of 1914 in isolated camps, with the prospect of a long war ahead, led to a desire on the part of the soldiers for something more than mere amusement. Y.M.C.A. secretaries bethought themselves of the popular lecturers who used to visit the associations. These they got into the camps to give lantern talks on travel, natural history, biography, and topics connected with the war. The talents of hut workers and chaplains were laid under contribution, especially in France. It was proved that soldiers will listen in hundreds to a good lecturer. Such a lesson was not to be lost. Due preparation was made for next autumn and winter by the creation in September, 1915, of a Headquarters Education Department, with a committee that had the Rev. W. Temple, D.Litt., as chairman, and a number of sympathetic educationists as its chief members. The aim of the committee was to provide more solid lectures in a more systematic fashion. Immediately requests for the services of lecturers

came in from all quarters. So wide was the field that the only way of compressing facts into the compass of a brief article is to survey the developments geographically rather than chronologically. Before attempting this it must be stated that so rapid was the growth of educational activity that the need for a very representative committee became apparent, and in May, 1918, the Y.M.C.A. Education Committee became the Y.M.C.A. Universities Committee, comprising representatives of all the universities in Great Britain, the chief bodies concerned with voluntary education, such as the W.E.A., the Adult School Union, the Co-operative Union, and the Victoria League, and several associations of teachers and educational administrators such as the National Union of Teachers, the Association of Directors and Secretaries of Education, and the Teachers' Christian Union. The Y.W.C.A. joined forces with the Y.M.C.A. The Universities Committee had as chairman the Rev. D. H. S. Cranage, Litt.D., and as a very keen member of executive and chairman of its Libraries Committee, Her Highness Princess Helena Victoria, G.B.E.

**France.** In January, 1916, by request of G.H.Q., France, the Y.M.C.A. began to send out special university lecturers to the base camps for periods of a month, and a small joint committee between the War Office and the Y.M.C.A. selected the lecturers, Professor Gilbert Murray acting as chairman, and Lord Derby (then Secretary of State for War), Captain B. S. Townroe, and Sir M. Bonham-Carter being among the members. Some thirty lecturers were sent out within three months. Military conditions hindered further lecturing till the following winter, but in January, 1918, G.H.Q. again requested that lecturers should be sent, this time to the Army areas as well as to the base camps. The series continued till May, 1918, when the German push interrupted it, but lecturers often worked under shell fire and amidst ruins, serving Army schools, Corps Headquarters, Y.M.C.A. huts and dug-outs, Church Army and Salvation Army huts—indeed every kind of opportunity was offered and accepted, all arrangements being made between Y.M.C.A. and G.H.Q. Lecturing was resumed in August, 1918, and carried on till May, 1919, a few ladies being sent out during this last period. In all, 180 lecturers were sent. The topics of greatest interest to the men were Industrial History, modern European History, and questions dealing with the future, such as Housing and Education. Great interest was also manifested in popular scientific subjects. Among the best known of the lecturers were Sir Richard Lodge, Sir George Faish, Professor H. H. Turner, Mr. Lawrence Binyon, Professor Sanford Terry, Professor T. J. Jchu, Sir Harry Johnston, Mr. A. H. Munday, Professor Bateson, and Mr. C. Grant Robinson.

From an early stage in the war, classes had been carried on in Y.M.C.A. huts as opportunity offered, the work being done by qualified men and women who went out in the first instance as canteen workers. The success of the lectures and the efficiency of the arrangements made by the Y.M.C.A. led to a request from G.H.Q. that the Association would act as official agent for G.H.Q. in carrying on a complete scheme of education throughout the Lines of Communication in France, providing the necessary administrative and teaching staff, books, buildings, etc. The Universities Committee assented and Sir Henry Hadow went out as Director in

July, 1918, being furnished by the Committee with a staff of sub-directors, lecturers, and teachers. He laid the foundation of Army educational work, and in September, 1918, the Army Council requested the Y.M.C.A. to release him in order that he might become Assistant Director of Staff Duties (Education) at the War Office, and apply throughout the Army the experience he had gained on the Lines of Communication. The Committee released him, being able to secure as his successor Sir Graham Balfour, Director of Education to the Staffordshire County Council, who extended and developed the work initiated by Sir Henry Hadow, until in January, 1919, there were 10 sub-directors and 178 teachers (men and women, elementary and secondary) at work, their task being facilitated by the appointment for the purpose of military education officers in each base. Each sub-director had charge of a base, in the majority of which there was a central school, classes being conducted also in the huts in outlying stations. At this time there were over 800 courses, covering over seventy subjects, with a monthly attendance of about 12,235 students. On 30th April, 1919, the War Office took over the work and the Y.M.C.A. agency came to an end, though informal classes and discussions in Y.M.C.A. huts were continued, and G.H.Q. requested that the Y.M.C.A. Universities Committee should continue to send out lecturers. A large number of the Universities Committee teachers accepted posts as civilian instructors under the Army education scheme for the British troops on the Rhine. The supreme value of the work done in France was that it effectively established the principle of general education for troops on active service and also the value of voluntary attendance.

**The Mediterranean. ITALY.** While not being constituted the official agency for the Educational Scheme in Italy, the Y.M.C.A. was asked to co-operate with the General Staff of the Expeditionary Force there, and the Universities Committee sent out eight teachers (men and women), while special courses of lectures were delivered by Dr. Hudson Shaw and Mr. E. J. Phythian. This work continued with great success for nine months, being brought to an end in June, 1919, by demobilization of the troops.

**MALTA.** The educational work done here by the Y.M.C.A. was chiefly in the early days of the war, when the island was crowded with convalescent troops, with the Y.M.C.A. secretary in charge, several of his colleagues being trained educationists. Miscellaneous classes in history, mathematics and languages were held, but the distinctive feature was a course of lectures and tutorial classes on "The Making of Modern Europe," "England in the Making," and geography.

**SALONICA.** Lectures and classes formed part of the ordinary Y.M.C.A. programme, a number of university men being on the Y.M.C.A. canteen and administrative staff, but the invitation of G.H.Q., Salonica, that the Y.M.C.A. should extend its educational activities led to the appointment by the Universities Committee in September, 1918, of a Director (Professor J. J. Findlay), a sub-director, and a small staff of teachers and lecturers. The issue of the War Office educational scheme made it advisable that the work should be done co-operatively, and in November, 1918, Professor Findlay was appointed Hon. Civilian Adviser to the General Staff, while maintaining his position as

Y.M.C.A. Educational Director, and his civilian staff was used mainly for purposes of advice and organization, a large number of education officers and instructors being appointed within the British Salonica Force itself. Classes in all kinds of subjects, from classical to commercial, were carried through, and the work extended in due course to Constantinople, Gallipoli, the Caucasus, and the Danube. A special feature was the delivery *in situ* of lectures on the Archaeology of Greece and Asia Minor, Delphi, Troy, and similar classical sites, while a certain amount of archaeological research was done. Outlying units were visited and work of great promise started among them. In June, 1919, the War Office took over the whole of the work, but retained some of the Universities Committee teachers as civilians attached to the General Staff.

**Eastern Theatres of War. EGYPT AND PALESTINE.** Here a great number of lectures were delivered and classes (especially in languages) carried on as part of the ordinary Y.M.C.A. programme, but in December, 1918, a joint committee comprising three military members nominated by the G.O.C. in Cairo, three civilian members nominated by the Y.M.C.A., and a chairman (Mr. R. Monteith Smith, Minister of the Interior and Chairman of the Y.M.C.A. Executive in Egypt) was formed to put into full operation the Army education scheme. Eleven teachers were sent out by the Universities Committee, and most of them were used as civilian advisers to the Education Officers of Brigades or Divisions. The work was taken up enthusiastically by the Divisions, and in one brigade 90 per cent. of the men enrolled in classes. A central school at Cairo was projected, but demobilization hindered its establishment. In May, 1919, it was determined that the Army should take sole control of the work, and the Y.M.C.A. staff was withdrawn, with the exception of two members who remained as civilian inspectors.

**INDIA, MESOPOTAMIA, AND GERMAN EAST AFRICA.** The work here was carried on by the members of the general Y.M.C.A. staff, which included a large number of university men, assisted by officers, n.c.o.'s., political attachés, and others. A very widespread series of classes and lectures was carried on for a period of two years under extraordinary difficulties and with remarkable success.

**Home Camps.** The chief service rendered here was in the form of lectures. In 1917 and 1918 five, six, and seven hundred lectures a month were arranged. On Salisbury Plain a considerable amount of class teaching was done; at Shoreham Depot a complete evening school for convalescents was carried on for about a year; in Staffordshire for several months special instruction in Citizenship was given to Young Soldier Battalions and their instructors. During 1918 the Universities Committee co-operated with the Appointments Board of the Ministry of Labour by providing special lectures for officers in convalescent hospitals.

**MUNITIONS AREAS.** An experiment started in the spring of 1917 proved so successful as to be the foundation of future Y.M.C.A. educational work in industrial areas. Short lectures at meal hours (mid-day or midnight) were given at munitions canteens, and resulted in several cases in classes for deeper study of economic and scientific questions. At one hostel a tutorial class was conducted through the W.E.A. and the University of London.

**LIBRARIES.** Hundreds of thousands of volumes

of light and general literature were collected from the public and distributed to the troops. A certain percentage of these were educational, but the libraries used in connection with classes and lectures were furnished by special purchases amounting to some £30,000 worth. Considerable use was made of the facilities offered by the Central Library for Students, through which the loan of more expensive educational books was secured for soldiers and munition workers.

**MUSIC SECTION.** While concert and dramatic parties were constantly sent out to the troops by the Y.M.C.A., the work of the Music Section of the Universities Committee was directed specially toward stimulating men to make their own music. A sub-committee of distinguished musicians, with Mr. Percy Scholes, Mus.B., as its secretary, recruited musical organizers, who did specially good work in France, Salonica, and Germany, collected immense quantities of music and musical instruments for orchestra work, arranged lectures on musical subjects, including special courses on "Listening to Music" (these lectures being illustrated by fine gramophone records), and in England secured the help of organists, choirmasters, and teachers of music as musical tutors in camps, especially during school holidays.

**General Conclusions.** The work carried on amidst constant movement of troops, with inadequate equipment and frequently by improvised methods, was costly in comparison with any results that could be tabulated. The Y.M.C.A. spent nearly £100,000 on France alone in less than nine months. Often teachers could not find a full day's work because classes were interrupted by the claims of military duty. Much of the study was fragmentary. But it was worth while, from the teachers' point of view and from the men's, for the mutual enthusiasm was extraordinary; the teacher learned to adapt himself and his methods; the soldier found a civilizing and heartening element in a life beset by the anxieties and barbarities inseparable from war. It was worth while from the nation's point of view, not only because it helped to maintain the morale of the men, but because it demonstrated, as no other experiment under any other conditions could do, the readiness of the mass of English manhood to respond to facilities for voluntary education in view of approaching national reconstruction. It demonstrated also the fact that no kind of social and religious work for men of the nation at large will succeed unless there is a strong element of education in the programme. Co-operation between the great educational bodies of the country, official and voluntary, was greatly advanced. But perhaps the chief fruit of the whole enterprise is the recognition given by the Army Council, in its educational plans for the future, to the fact that education for citizenship must form part of the training of a soldier; and the realization by the bodies co-operating in the Y.M.C.A. Universities Committee that in towns and villages, industrial and rural areas at home, there is a boundless opportunity for humanistic education now that the war is over—an opportunity that can be redeemed only by continuance of co-operative effort on lines more broadly democratic and comprehensive, as well as more systematic, than could ever be possible within the period and conditions of war service with the troops. This it is hoped to accomplish by the continuance of the Y.M.C.A. Universities Committee as a peace-time organization, not rivalling any

other, but seeking to open doors for them all, and to conduct educational work on its own account in fields hitherto unexplored.

B. A. Y.

**YOUNG WOMEN'S CHRISTIAN ASSOCIATION, THE EDUCATIONAL WORK OF THE.**—The aim of the Association for the last fifty years has been the spiritual, intellectual, moral, and physical development of its members. At the World Conference held in Berlin in 1910, the following definite policy with regard to educational work was drawn up—

"If industrialism has compelled a great company to stop at the fifth or sixth grade in school, there is a great need for a kind of training which will compel the interest of the growing girl, and the Association is giving this opportunity for education to thousands. It is not only helping those who wish to supplement a meagre schooling, but is inspiring others with a desire for advancement in its varied classes. In its domestic science and art classes, it is fitting for home-making those girls who have had no home training, or whose work has unfitted them for such duties. In its classes in handwork, it is developing skill and artistic ability. In its commercial and technical courses, it is helping to make efficient girls who are self-supporting, and in its study classes and clubs in literary subjects, languages and art, it is opening up a new wealth of life, and directing the imagination and creating ideals."

**Abroad.** The following illustrations will serve to show how this policy of the Young Women's Christian Association is being carried out in three different countries—

In **INDIA**, the original intention of the Association was to help to solve the Anglo-Indian problem, by giving to girls and women higher ideals of life and service. In many places, classes are held for instruction in domestic economy, typewriting, shorthand, and almost every form of supplementary education, besides drill and physical exercises. These classes are open to all the women of the city and are recognized by Government, which gives a grant to cover the salary of one domestic science teacher. At Lahore the Y.W.C.A. Educational Department has had the control and administration of the Government continuation classes for women since 1908, while in 1911 a commercial school was opened in Bombay. The work of helping the women students to develop powers of leadership, and of inculcating the Christian ideal of service, is undertaken by the Y.W.C.A. student secretaries, who are university women from Great Britain, Canada, and the United States, and whose admirable work will prove one of the formative influences in the history of Indian progress, as well as in that of China and Japan.

In the **UNITED STATES**, the Educational Department has developed along two lines. A good example of the first may be found in the Commercial Efficiency Club at Lancaster, Pennsylvania. Courses of advertising and salesmanship, office system, stenography, spelling, book-keeping, etc., are appreciated by a large membership, the aim being to improve the quality of the work in which the girl is employed. The second line tries to improve the quality of the girl, regardless of what her work may be. Many whose work requires speed rather than skill, are glad of vivid instruction aided by pictures and demonstration in first aid, hygiene, household management, literature, elocution, handicrafts, and travel talks.

In New York a branch has opened its building for classes taught by teachers of the public trade school, and girls are encouraged to attend evening schools. A striking feature of Association work is the instruction of immigrants in the English language.

**At Home.** Association leaders in **GREAT BRITAIN** believe in adult education, and classes are arranged in most institutes and clubs, which generally possess libraries of educational works. The programme may comprise physical drill, choral singing, first aid, home nursing, hygiene, needlework, cooking, swimming, French, elocution, Bible study, courses of literature, history, social subjects, and missionary work.

The London division has for some years been affiliated to the Workers' Educational Association (*q.v.*), and efforts are made to interest residents of Y.W.C.A. hostels in the W.E.A. ideals and methods. In one case, the W.E.A. literature class developed into a tutorial class running for three years under London University. Both in New York and in London the Y.W.C.A. has training centres where opportunities are given of attending courses on theology and sociology to students who, besides, gain practical experience of hostel, club, and organizing work.

In all countries the Association seeks to educate its members on lines of citizenship, the purpose of all its educational work being the enrichment of the individual and, through her, the enrichment of the community.

G. M. T.

**YUGO-SLAVIA, THE EDUCATIONAL SYSTEM OF.**—Yugo-slavia, or the Kingdom of Serbs, Croats, and Slovenes, includes several provinces, viz., Serbia, Montenegro, Bosnia and Herzegovina, Voivodina (Srem, Banat, Bačka), with Baranja, Dalmatia, Croatia, and Slavonia. The education in these provinces, excepting Serbia (see **SERBIA, THE EDUCATIONAL SYSTEM OF**) and Montenegro (see **MONTENEGRO**), is as follows—

**Bosnia-Herzegovina.** Under the Turkish rule (1763-1878) there were very few schools in Bosnia and Herzegovina: 47 boys' and 6 girls' primary schools, and 1 theological seminary (Banja Luka) for the orthodox Serbian population; some three or four Roman Catholic schools in the Franciscan monasteries (Krešev, Fojnica, Sutjeska); and here and there a Moslem school. During the Austrian régime (1878-1918), the orthodox population having always been persecuted, the number of its schools had been reduced by the Government; but, as that population pressed strongly for better educational facilities, the Government was obliged to meet this demand and establish new schools. So in 1906 there were 239 primary schools with 568 teachers, and 458 at the end of the Austrian régime. The greatest credit for this is due to the Serbian Society, "Prosveta," founded in 1902. It is interesting to add that an English lady, Miss A. P. Irby, author of *Travels in the Slavonic Provinces of Turkey* (1865), and a great friend of Serbians in Bosnia, who lived for many years at Sarajevo and founded there an excellent college for girls, bequeathed in 1911 all her property to the "Prosveta."

The beginning of the new era (since 1918) has been marked with greater progress. There are now 551 primary schools: 14 private; 35 confessional Catholic; 4 confessional Protestant; and the rest, 798 in number, are public (*i.e.* State schools).

During the Austrian *régime* (until the end of 1918) there were secondary schools at: Sarajevo (3), Mostar, Banja Luka, Bihać, Travnik (Catholic), Visoko (Catholic, Franciscan), Šiloki Brijeg (Catholic, Franciscan). During the last two years of the new *régime*, 4 new schools were opened, and towards the end of 1921, 4 more were added. At Mostar and Derventa there are training colleges for male teachers, and one for female teachers at Sarajevo, where there is also a private one (confessional, Catholic). At Sarajevo and Mostar there are schools of Arts and Crafts.

During the Austrian *régime* the education in the secondary schools was classic; in the new *régime* it has become modern and national, on the model of that in Serbia.

The annual Budget for 1921 is 25 million dinars (about £900,000); for 1920 it was 12½ million dinars; and during the Austrian *régime* it was as low as 2 millions.

**Srem, Banat, Bačka, with Baranja.** Since 1690 the Serbian people in these countries have asked permission to found schools wherever they have been allowed to build churches. Since that time, and during the eighteenth century, many primary schools have been founded (Senta, Novi Sad, Subotica, etc.), and in 1726 a secondary school was established at Karlovci. This school lasted, with some interruption, until 1738, and it was Russian in character, the only teachers being Russians. In 1776 the Austrian Imperial Court prescribed the first Bill for the Serbian schools in these provinces. From that time, these schools have progressed. Many Serbians from Serbia studied in these schools, and a still greater number of Serbians, native from Novi Sad and Karlovci, etc., and educated there, went to Serbia to become teachers, professors, etc. The Vojvodina was the cradle of the new Serbian literature, and its influence extended to Serbia and gave birth to the literary activity of this province. So Vojvodina laid also the foundation of the educational system of Serbia proper.

There are now 19 secondary schools—at Novi Sad (2 schools), Sombor, Bela Crkva, Srbobran, Subotica, Kikinda, Pančevo, Senta, Vršac, Bečkerek, Zombolj, Karlovci, Ilok, Mitrovica, Ruma, Vinkovci, Vukovar, Zemun; 3 training colleges for female teachers are at Sombor, Novi Sad, Subotica; 5 commercial academies (Sombor, Novi Sad, Subotica, Bečkerek, Zemun); and the Theological Seminar at Karlovci.

In March, 1920, a Faculty of Law was opened at Subotica, with a three years' course of lectures, and both doctors' and bachelors' degrees are granted. There are 12 professors, but the number of the teaching staff is still increasing. About 200 students matriculated in 1920, and about 500 in 1921.

**Dalmatia.** During the Middle Ages, the Renaissance, and later epochs, Dalmatia, with Ragusa, which was an independent republic for 1,000 years, had various schools. At present, there are 442 primary schools, of which 5 are private and the rest (437) public; 10 high primary schools, of which 3 are private, and several on the lines of high primary schools (where pupils of 12–14 years revise and somewhat enlarge what they have learnt in primary schools).

The secondary and special education comprises: 4 public secondary schools at Spljet (2), Kotor, Ragusa, and 4 private at Spljet (2), Sinj (Franciscan) Herceg Novi; 2 naval schools (Kotor, Ragusa),

2 commercial academies (Spljet, Ragusa), 1 school of arts and crafts (Spljet), 2 training colleges for teachers (Ragusa, Šibenik).

**Croatia and Slavonia.** For many centuries, Croatia had schools, but very few using Croatian (Serbian) as the teaching language. With the national and intellectual Croatian Renaissance, which began in 1835, the mother-tongue grew in importance and has been generally introduced in schools. To-day, Croatia and Slavonia have a well-organized educational system in the national language, as also have the Serbian.

The number of primary schools (with those in Srem) is 1,654, of which 96 are private, 27 confessional, the rest (1,537) being public. There are 38 high primary schools, of which 4 are private, 3 confessional, and 31 public.

There are 30 secondary schools: at Bakar, Belovar, Brod, Darnvar, Gospić, Karlovac, Koprivnica, Korenica, Kostajnica, Krapina, Križevci, Nova Gradiška, Ogulin, Osek (3 schools, 1 for girls), Petrinja, Požega, Senj, Sisak, Snšak (1 for boys, 1 for girls), Varaždin, Virovitica, Zagreb (6, of which 2 for girls). There are training colleges for teachers at Čakovac, Gospić, Karlovac, Krapina, Križevci, Osek, Pakrac, Petrinja, Zagreb; and commercial academies at Osek, Sušak, Zagreb. Zagreb has also a school of arts and crafts, an academy of music, a technical college, etc.; while there is a naval school at Bakar.

The Zagreb University dates from 1874. It comprises the faculties of theology, philosophy, law, and medicine (the last since 1918). The course of studies lasts for four years. Both doctor's and bachelor's degrees are granted. The teaching staff numbers about 100, while the number of students of medicine is 900. The University is endowed with many well-equipped laboratories and prosperous institutes, among which the Institute of Anatomy is the most prominent. The University library has a fine collection of volumes and is well organized.

**Slovene Lands.** In the history of the eighteenth century education of the Slovene lands (*i.e.* in Carniola and part of Styria, the other Slovene lands being taken out from the kingdom of Serbs, Croats, and Slovenes), an important date is the year 1774, when the Government undertook a reform of all schools throughout the Austrian Empire. As, however, the education was exclusively German, the profit of it was not a great one. During the short French *régime* (1809–1813), attention was especially paid to the national language, and some Slovene text-books appeared. The Metternich Government which succeeded was again very German, and it was not until 1848 that education began to be rather more national. This was by no means general, however; and in many schools in these lands the Slovene language was taught as an ordinary subject of the curriculum, the instruction being given in German. But with the progress of Slovene literature and the coming of the Press (the first Slovene newspaper was allowed to appear in 1843), the Slovene language became a more important factor in the schools, and at the end of 1918 there were several national primary and 7 secondary Germano-Slovene schools.

To-day there are 773 primary schools, 207 having one class, 194 two classes, 125 three classes, 100 four classes, 91 five classes, 49 six classes, 3 seven classes, and 4 eight classes. There are also 30 high primary schools (21 public and 9 private) at Ljubljana (4), Celje (2), Ptuj (2), Maribor, Zalač,

Ljutomer, Slovenski Gradac, Šaštanj, Tržič, Ribnica, Tesenice, etc. The number of secondary schools is 14: Ljubljana (4 schools, of which 1 is German), Kranj, Maribor (2), Murska Sobota, Novo Mesto, Kočevje, Celje, Ptuj, St. Vid (Catholic), Kamnik (Catholic, Franciscan). There are 7 training colleges for teachers: Ljubljana (1 for men, 2 for women), Maribor (1 for men, 2 for women), Skotja Loka (for women). There are several commercial academies, and arts and crafts schools, at Ljubljana, Maribor, etc.

Since 1848 the Slovene deputies in the Vienna Parliament agitated for a national university, but the Vienna Government persistently refused their requests and rejected the Bills proposed with this view. It was only after the downfall of the empire of Austria-Hungary and the formation of the new Yugo-slav Kingdom that the university was founded at Ljubljana. The university, opened in 1919, is organized wholly on the model of Belgrade University. It comprises the faculties of philosophy,

law, medicine, engineering, and theology. The teaching staff numbers about 120, and the students just over 1,000.

In reviewing the educational system of Yugoslavia, the following general remark, may be added. The system represents a vast organization of every kind of modern school, and also an unusually wide curriculum owing to the differences in past education and national outlook of the various Yugo-slav provinces. Little by little, these differences will be levelled and more unity will be reached. Serbia has given her system of education to Montenegro, Bosnia is wholly adopting the same system since the union with Serbia, and Ljubljana modelled its university on the pattern of the Belgrade University. In future, the influence of the educational system of Serbia, which is a very sound one, will be perhaps more and more felt; but probably also the good educational qualities of other provinces will exert their influence on the educational system of Serbia.

P. POPOVIC.

## Z

**ZOOLOGICAL SOCIETY, THE.**—This is best known to the public on account of its collection of animals in the Zoological Gardens, Regent's Park, London. It was established in 1826 by Sir Humphrey Davy, Sir Stamford Raffles, and other eminent persons, "for the advancement of zoology, and the introduction and exhibition of subjects of the animal kingdom, alive or in a state of preservation." A collection of animals was first established in Regent's Park in 1828, and in 1829 the Society had a museum in Bruton Street, which was subsequently removed to Leicester Square. The Society now took the place of the Zoological Club of the Linnaean Society.

In 1834 the Society's collection was enlarged by the removal of the "Tower Lions" to Regent's Park. Henry I kept some lions and leopards at Woodstock to amuse his ladies and courtiers. Henry III moved the wild beasts to the Tower, and there the collection had a place until 1384, under the charge of a person of quality, often the Constable of the Tower. In 1829 the collection contained a large variety of quadrupeds, and the restricted room being injurious to their health, the menagerie was shortly after removed to more open quarters.

**The Collection of Live Animals.** The early history of the collection may be found in *The Gardens and Menagerie of the Zoological Society delineated*, published by the Chiswick Press, and its growth may be traced in the annual reports of the Zoological Society. Year by year new specimens and new species have been obtained either by purchase or bequest, and explorers have often been generous in their gifts to the collection.

The first *giraffe* which appeared in England arrived in 1827 as a gift from the Viceroy of Egypt to George IV. It lived a few months at Windsor before it fell a victim to its unnatural life. In 1834 the Zoological Society purchased four giraffes from Khordofan, where they had been captured by

M. Thibaut. They lived for many years, and between 1840 and 1850 six young giraffes were born in the gardens. A pair of young giraffes were obtained from Khordofan in 1902, and from these a young female was born in 1907 and has been successfully reared.

In 1836 much excitement was caused by the arrival of the first *chimpanzee*, and still more in 1850 by that of the first *hippopotamus*. The latter was obtained by the help of the Consul-General at Cairo, who commissioned a party of hunters to obtain a specimen, which they succeeded in doing by capturing a calf three days old in the White Nile region. The creature was then so small that the chief hunter was able to carry him, but after reaching full size he weighed about 4 tons. The effect of his arrival in May, 1850, is shown in the increase in the number of visitors to the gardens from 169,000 in 1849, to 360,000 in 1850. A mate for this animal was obtained in 1853. Professor Owen published a report on the new acquisition, and Macaulay wrote that "asleep or awake the hippopotamus is the ugliest of the works of God." Two hippopotami have been born in the Gardens; one died very soon and is to be seen there stuffed; the other was born in 1872 and lived till 1908, when it died of old age.

The *Reptile-house* was fitted up in 1849. The creatures are kept in large plate-glass cases. In 1911 the cages and enclosures were fitted with sand, rock work, vegetation and pools of water, suitable for the different kinds of lizards and snakes. The present collection includes crocodiles, alligators, lizards, snakes, turtles, and tortoises, toads, frogs, newts and salamanders. One of the giant tortoises is 3 ft. long, weighs a quarter of a ton, and is estimated to be over 100 years old.

The collection of *bears* is very large, and the *monkey-house*, built in 1864 and re-decorated in 1906, contains many varieties and is an endless source of attraction to visitors.

The Society has not been very fortunate with



its *elephants*, of which several have died after short lives in the gardens. In 1882 much excitement was roused in London by the sale of a fine specimen, named "Jumbo," a beast with an uncertain temper, which caused his death on a railway journey a few years later. Both African and Indian elephants are represented in the gardens.

*Birds of prey* are accommodated in covered sheds erected in 1904 for smaller kinds, and a long range of large flight cages for larger ones. Some of the inner compartments are warmed in cold weather.

The *lion-house* is a large building, built in 1876, with a range of fourteen cages, each containing an inner sleeping compartment which communicates with a large enclosed open-air yard, which the animals use in the summer. The Society has valuable specimens of African and Indian lions, tigers, leopards, panthers, pumas, jaguars, and cheetahs. Other large collections are those of parrots, antelopes, deer and cattle, ducks, geese and similar birds, rodents and civets.

*Insects* are accommodated in a house constructed in 1913, Sir J. K. Caird having given £1,500 to the Society towards the cost of this house and the beaver pond. The exhibits of insects undergo frequent change, but they afford the student valuable opportunities of studying rare creatures such as leaf insects, the bird-eating spider, and many aquatic insects.

A long two-story building erected in 1909 is used as an infirmary. It is fitted with wards of various sizes and kinds such as may be required, and contains complete provision for disinfection, ventilation and separate regulation of temperature for each compartment. Attached to the infirmary is an operating-room for such cases as allow of surgical operation. Adjacent to the infirmary are laboratories and a post-mortem room. The Society's pathologist makes an examination of every animal that dies in the collection, and the results of his observations are carefully recorded. Under the direction of the Society's prosector, the bodies of such animals are used for anatomical research, or are prepared for museums.

**Fellows and their Privileges.** The Zoological Society consists of nearly 5,000 Fellows (F.Z.S.), and there are also 25 foreign members and 200 corresponding members. It is governed by a Council elected annually. The Patron is the King, who has been a Fellow since 1894. Any lady or gentleman is eligible for the Fellowship of the Society. The admission fee is £5, and the annual subscription is £3, or a life composition of £45 may be paid in lieu of subscriptions. Fellows have personal admission to the gardens with two companions at any time, and the wife or husband of a Fellow may use this privilege in the absence of the Fellow.

Each Fellow may also have annually forty tickets, each admitting one adult on a Sunday or a week-day, and twenty tickets each admitting one adult on a week day; or, he may receive a book of printed orders, each admitting two adults on a Sunday, and a similar book of week-day orders.

Fellows have also the privilege of using the library of the Society, which is kept at the offices in the gardens, and of attending the meetings of the Society.

**Meetings and Publications.** Scientific meetings are held at the Society's offices from October to June. From 1846 the Society's offices were in Hanover Square, but the present offices in the

gardens were opened in 1910. The main part of the building consists of a library of over 30,000 volumes comprising the Society's collection of zoological literature, and is of immense value to students. It is arranged so as to serve as a lecture hall for the Society's meetings and for popular lectures, and attached to it are two reading rooms.

The gardens occupy an area of about 34 acres and are held from the Crown at an annual rent. They are open to the public from 9 a.m. till sunset, and the charge for admission is a shilling for adults and sixpence for children. On Mondays and on certain holidays the charge is sixpence for everyone. On Sundays the gardens are open only to Fellows and their friends and holders of special tickets.

The publications of the Zoological Society are in two forms, the "Proceedings" and the "Transactions." The *Proceedings* include the business transacted at the scientific meetings and the papers read and recommended for publication. These yearly volumes date from 1861, and may be had with or without plates. The *Transactions* are published in quarto form to suit the special requirements of reports and papers which require large plates to illustrate them. They are published at irregular intervals, and number about twenty volumes. Fellows and corresponding members receive these publications free for each year of their subscriptions. A fully illustrated Official Guide to the gardens is issued.

**ZOOLOGY, THE TEACHING OF.**—Considering how intimate are our relations to animal life, and that we ourselves are members of the animal kingdom, it might not unnaturally be supposed that Zoology, the study of animals, would occupy a prominent place as an educational discipline. This, however, is not the case, possibly because the subject is not of a utilitarian nature. Yet the vast majority of children are zoologists or, rather, naturalists, before they are scholars.

**University Zoology.** Under this comprehensive heading we may range our subject as included in courses of study taken by those who have left school and entered an institution of collegiate rank, which may or may not have university standing. Except in medical and veterinary schemes of study, it is optional, and mainly appeals to those lacking in mathematical ability, though to this there are notable exceptions. Before the influence of the evolutionary school of Darwin and Wallace made itself felt, academic zoology mainly consisted of systematics, founded chiefly on the labours of Linnaeus and Cuvier, carried out by the aid of museum collections and the superficial examination of such fresh material as might be available, individual laboratory work by way of dissection, and the making of histological preparations being small in amount or ignored altogether. In many cases, however, medical students received anatomical and histological instruction as an introduction to the purely professional part of their education; and, as it was usual for professors of zoology to be qualified medical men, the rudiments of comparative anatomy, a branch founded by the brilliant researches of Johannes Müller and his disciples, leavened the somewhat arid study of classification, even where individual laboratory work was lacking or reduced to a minimum.

A good deal may be said for the old ideal, which gave broad views of the animal kingdom; instilled a living interest into faunistic studies; and resulted

in the production of many intelligent collectors and naturalist-travellers, who rendered a multitude of facts available for subsequent workers on various lines.

On the other hand, it became increasingly realized, as the views of Darwin and Wallace made quite astonishing progress, that the knowledge acquired by students was too superficial in character; and that a detailed laboratory study of selected "types" would improve the observing powers of the individual, and lay a more solid foundation of knowledge. In this country, Rolleston at Oxford inaugurated the "type system" of instruction on these lines; and Huxley, at the Royal School of Mines, elaborated this kind of teaching, laying particular stress on the importance of individual practical work. For many years, the type system was dominant; but, though it undoubtedly did away with the undesirable superficiality of the older method, it erred gravely in the other direction. A first-hand knowledge of trivial anatomical details was insisted upon to such an extent, that the unfortunate student of zoology often lost all sense of proportion. "Types" became all-important, and general principles were sadly neglected. This was very far indeed from the intention of the founders of the system. Huxley, as is well known, attached so much value to broad views, that he treated of both animals and plants in his illuminating course of "General Biology."

At the present time, a reasonable compromise has been effected between conflicting ideals. Types are still studied in considerable detail, but they are subordinated to a general conspectus of the whole subject.

**Secondary School Zoology.** Some schools are so enterprising as to undertake instruction in the first, or "Intermediate," stage of university zoology, which is, of course, taught on the lines already indicated. Apart from this, the secondary school is mainly concerned with Zoology as a branch of Nature Study, which has been largely advocated by educationists of later years, and is an outcome of what used to be called Natural History. The schools of the Society of Friends have long been noted for the educational use they have made of this subject, material being collected during field excursions, examined and identified at leisure, and subsequently preserved in the school museum.

Other secondary schools have followed with advantage this good example, and many of them possess flourishing Natural History societies that have not only promoted education, but made positive additions to our scientific knowledge.

Nature Study (*q.v.*), which has several sides besides the zoological one, is concerned with animals not merely as mechanisms, but as mechanisms at work, as living organisms adapted to complex and ever-changing surroundings. It consequently deals with habits and life-histories, giving new values to old facts. Even the lay educationist, for ever harping on the useful, freely admits the utilitarian value of the study of the animal friends and foes of the farmer and the fisherman. Schemes of "further" education of a quasi-secondary kind include, among many other matters, instruction on such subjects for the benefit of the young farmer and the professional fisherman.

**Primary School Zoology.** This, at its best, is elementary Nature Study, comparable to the corresponding discipline as treated by the secondary school teacher, but necessarily of a somewhat simpler

character. The introduction of the subject into primary and State-aided secondary schools situated in the country was apparently due to the idea that, by imparting a "rural bias" to the curriculum of such institutions, something might be done to help the agricultural industry and check rural depopulation. The result, from this point of view, has not been particularly encouraging; but the educational value of Zoology and kindred subjects has been triumphantly demonstrated, a value which makes itself apparent in urban as well as rural schools.

Nothing is more difficult than to arrange a suitable curriculum for the elementary school, yet the problem is of vital importance, for this stage provides training for the mass of the population during the most impressionable years of life. But it can be said without fear of contradiction, that Zoology, or some cognate subject, has large claims for inclusion. It provides an interesting change from more irksome necessities, such as arithmetic, and uses the child's natural predilections for educational purposes. He will listen with attention to lessons dealing with common animals of which he has first-hand knowledge, and grasp intelligently the leading facts regarding their structure and life-history. He will easily learn how to observe his captive pets and the wild animals seen in his walks or in the course of the school journeys that are beginning to assert their place in humanistic teaching. This is a valuable educational asset, of which full use has been made in Baden-Powell's Boy Scouts' training, one of the most important educational movements of modern times. (See *BOY SCOUT MOVEMENT, THE*.)

The idea embodied in ordered zoological teaching was foreshadowed in some of the object lessons which were so familiar in elementary schools. But these were apt to be disjointed, erratic, and lacking in system; whereas our modern courses proceed on a regular plan making use of the yearly pageants of the seasons.

**Educational Value of Zoology.** The subject is unrivalled as regards training of the observing power. The living animal, especially when studied in its natural surroundings, as part of a complex web of life, affords unlimited scope in this direction; while the dead animal gives ample opportunity by way of anatomical and histological analysis, though this is only suitable for the advanced pupil.

A modicum of systematic Zoology, carefully adapted to the course of which it forms part, constitutes a valuable means of encouraging accurate observation. Vertebrates, molluscs, and insects, perhaps afford the best material for this purpose, and here we find one important use for the museum regarded as an educational implement.

The more advanced stages of Zoology provide admirable training in reasoning based upon observation. In this connection, the teacher would do well to read Darwin's classic work on the *Formation of Vegetable Mould*, as this is a particularly luminous example of the scientific method. Nor should he forget that the Darwinian theory of evolution, which has revolutionized almost every department of human thought, was patiently elaborated in precisely the same way, and is necessarily based, to a very large extent, on zoological data.

It may be added that the training in inductive reasoning, for which Zoology provides such rich material, is far from incompatible with training of the imagination. We find, indeed, that such reasoning

requires the stimulus provided by imagination at the stage where hypotheses are based upon the results of accurate observation. There are here many fascinating lines of study eminently suitable for educational purposes, such as animal colouration and other matters concerning adaptation to surroundings.

But a word of caution is necessary regarding unrestrained use of the imagination. Although, in many cases, we can answer the question "Why?" with a fair approach to certainty, our knowledge is still very incomplete, and rash conclusions are greatly to be deprecated. Each case of animal colouration, for example, must be studied on its own merits, as there may be more than one explanation, or we may be dealing with a problem insoluble in the present state of our knowledge.

In conclusion, Zoology is a discipline that can be used very effectively to stimulate the aesthetic sense, and to give that interest in natural surroundings which helps to make life worth living. And, quite apart from ordinary educational considerations, the introduction of Zoology into an educational scheme often gives the initial impulse towards a lifelong hobby, which lightens the cares of professional or business life and provides rational occupation on retirement.

J. R. A. D.

**ZWINGLI, ULRICH** (1484–1531).—The Swiss Protestant reformer; was first priest at Glarus, and then at Einsiedeln, in the canton of Schwyz. In 1518 he was called to Zurich. In 1524, he induced the magistrates to suppress Church pictures and images, and the Mass. In 1525 Zwingli was appointed rector of the Carolinum, the Minster School. He taught scripture, and in 1526 issued an edition of the poems of Pindar. He established

at Zurich a theological college in which Latin, Greek and Hebrew were taught. In this college, called "The Prophecy," Myconius and Leo Jud assisted Zwingli. In a war of the forest cantons of Uri, Schwyz, Unterwalden, Lucerne and Zug, against Zurich, Zwingli was killed at the age of 47. He was the broadest-minded of the great Protestant reformers, more distinctly humanist than Luther and Calvin.

In 1523 Zwingli prepared a booklet for a boy 13 years old, Gerald, son of the widow of Hans Meyer von Knonan, whom Zwingli married in 1524. This booklet was prepared as a present to the child after his visit to the baths of Baden in the neighbourhood of Zurich. It contained precepts in Latin on education, on the instruction and the bringing up of Christian children. It was also issued in German. Zwingli's booklet was first translated into English in 1548 (Ipswich) by Richard Argentine (*alias* Sexten) under the title *Certaine Precepts*. An English translation was issued in 1899 by Alcide Reichenbach (Collegeville, Pennsylvania), under the title *Christian Education of Youth*. It is based upon religious education, as found in the Scriptures. Hence the necessity of the knowledge of languages. Stress is laid on simplicity in language, food, clothing. He resembles Vives (of whom he was a contemporary) in his protest against ambition and avarice in the youth.

Like Locke and Rousseau, but 200 years earlier, he advocates the learning of a trade, and one by which a living can be earned.

F. W.

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